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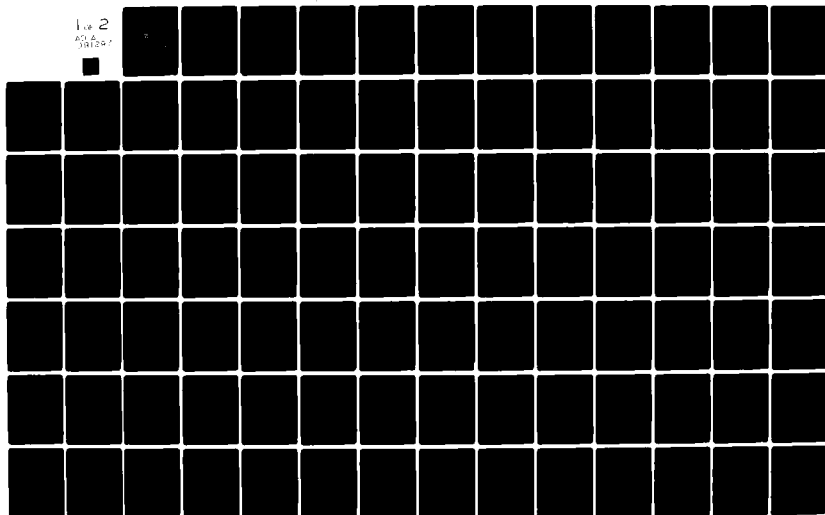
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Harris, William Claude (M.S., Telecommunications)
A Survey of Cable Television's Past, Present and Future
Challenges
Thesis directed by Professor Samuel W. Maley

In 1952 the Federal Communications Commission (FCC) initiated a policy of providing as many communities as possible with local television stations, rather than provide for a regional or national broadcasting system. Both geography and the FCC's localism policy contributed to the beginnings of the cable television (CATV) industry. CATV began by intercepting TV signals from the air and transmitting the signals over coaxial cable to local communities where TV reception was impaired by the local terrain. As the television viewers' appetite for more TV programming grew, CATV began to import both network and independent stations' signals into their communities. When CATV began to penetrate the major urban markets, television broadcasters perceived a potential threat of competition. Failing to control CATV through legal actions, the broadcasters sought and obtained federal regulation of CATV through the FCC.

Since 1965 the CATV industry has been regulated by the FCC and discouraged from effectively penetrating the major television markets. The Communications Act of 1978 would remove CATV from federal regulation; however, it would raise some new problems. While deregulation

would allow CATV penetration of the urban markets, competition by the telephone company would also be allowed. In addition the CATV industry faces continual problems with state and local regulation, and with the telephone companies over pole attachment agreements.

In order for the cable television industry to prosper in the major markets, new technology and new services will be required. New technology in the form of digital signals and optical fiber cable will provide greater bandwidth for more channels. New services such as two-way systems and specialized programming will increase urban penetration. Cable television began by providing a service to meet a public need, and it can prosper only if it continues to meet the public's needs with new and better services.

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A SURVEY OF CABLE
TELEVISION'S PAST, PRESENT
AND FUTURE CHALLENGES

by

William Claude Harris

B. S. Wisconsin State University-LaCrosse, 1968

A thesis submitted to the Faculty of the Graduate
School of the University of Colorado in partial
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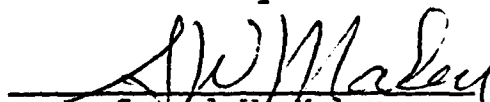
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by



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This abstract is approved as to form and content.

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PREFACE

The purpose of this thesis is to bring together in a single volume the pertinent information about the Community Antenna Television industry's early beginnings, federally regulated existence, and its future possibilities without federal regulation. It is intended as a primer; a survey of the CATV industry. It was researched and written on a nontechnical level for those who desire a basic understanding of how a CATV system works and the ways in which new technology may hasten CATV's future growth.

While the cable television industry faces many problems such as the copyright and public access issues, there are two paramount issues effecting the future of CATV. Cable television must penetrate the major TV markets to insure continued growth; however, it faces the possibility of competition with the telephone company in these markets. This thesis addresses those two problems. 4

I wish to acknowledge my sincere appreciation for the help and guidance given me by my thesis committee members. For her inspiration, guidance and assistance in researching this thesis, I wish to express my deepest appreciation to my mother, Edith S. Harris, National Sales Manager, WKBT-TV, LaCrosse, Wisconsin.

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CHAPTER I

CATV PRIOR TO FEDERAL REGULATION

Of man's many modern inventions the one which has changed his life the most and is probably the least understood is television. The television receiving antenna collects electromagnetic waves transmitted into the air by the local television station's antenna. As the electromagnetic waves strike the receiving antenna a minute electrical current is generated. The strength of the current varies proportionally with the strength of the transmitted signal. This varying current is passed from the receiving antenna to the television receiver through a transmission line called a "lead-in." The television receiver amplifies and processes this signal and then displays a picture on the screen which is a reproduction of the pictures generated at the television broadcasting studio.

A basic cable television system serves the same purpose as the television receiving antenna and the lead-in, only it has the ability to receive over the air signals that the ordinary television antenna is unable to receive.

Figure 1 illustrates a conventional cable

television system designed to distribute broadcast television programming. The system consists of three parts. The tower and antennas to receive over the air broadcast television signals and the facility used to process the received signals is referred to as the "headend."

Most of the available signals are received over the air directly from television stations, however, as shown in Figure 2, signals may also be received by microwave or by cable connected to local studios which originate programs for the cable TV network. It is at the headend that each signal is assigned to a VHF channel for transmission over the second part of the cable system.

The second part of the system consists of coaxial cable to deliver the signals to the system subscribers and a series of amplifiers placed along the cable system to maintain the proper signal level. This second part, the cable system, performs the same function as the lead-in discussed previously. Television signals are carried into a community on the main cable called the trunk cable. Smaller feeder cables branch off the trunk cable to serve designated areas of the community. The physical routing of the cable system usually parallels the local telephone company's cable system, which may be either hung from poles or run under ground through cable ducts. It is from the feeder cables that the individual

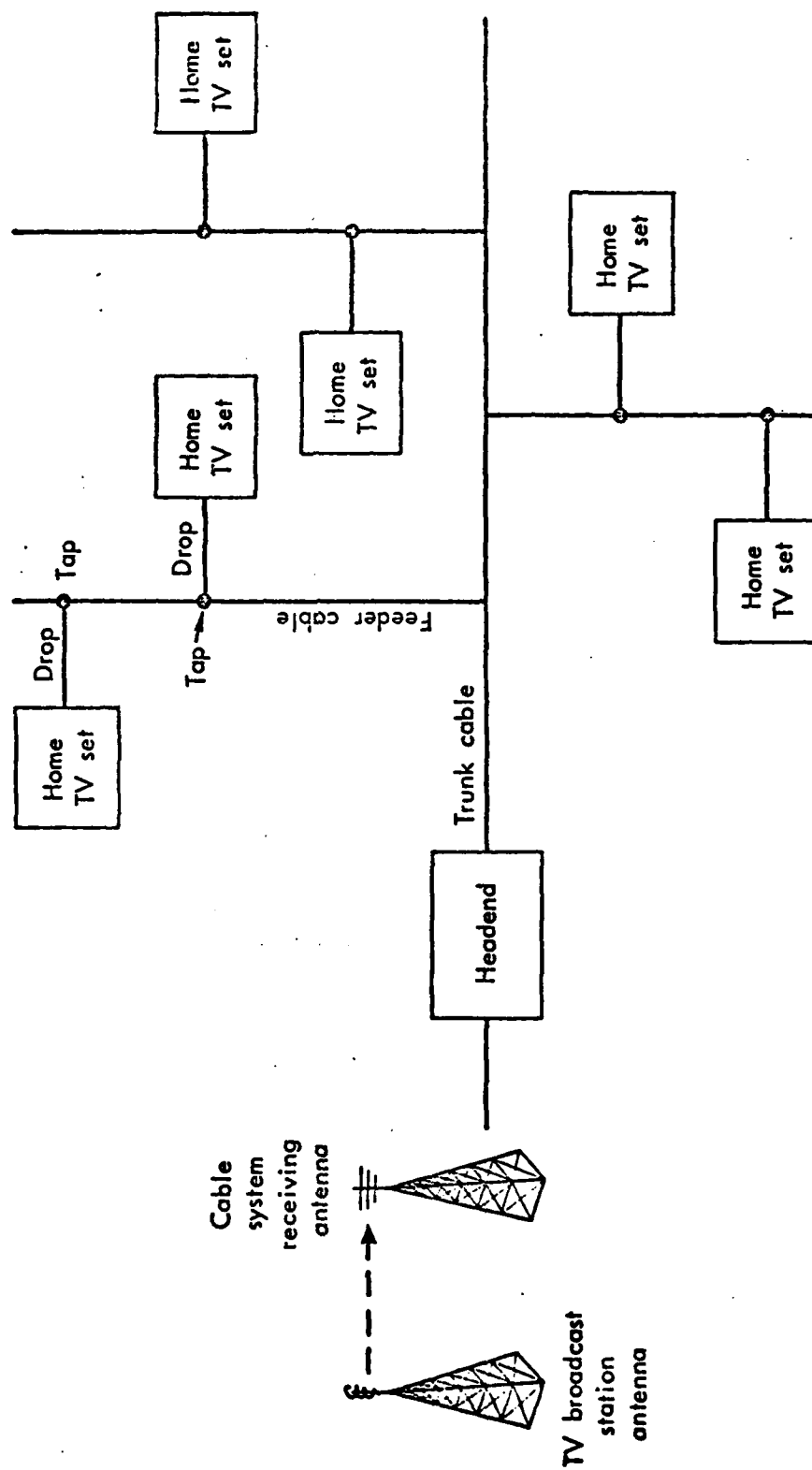


Figure 1 A Basic Cable Television System
 Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology, p. 4.

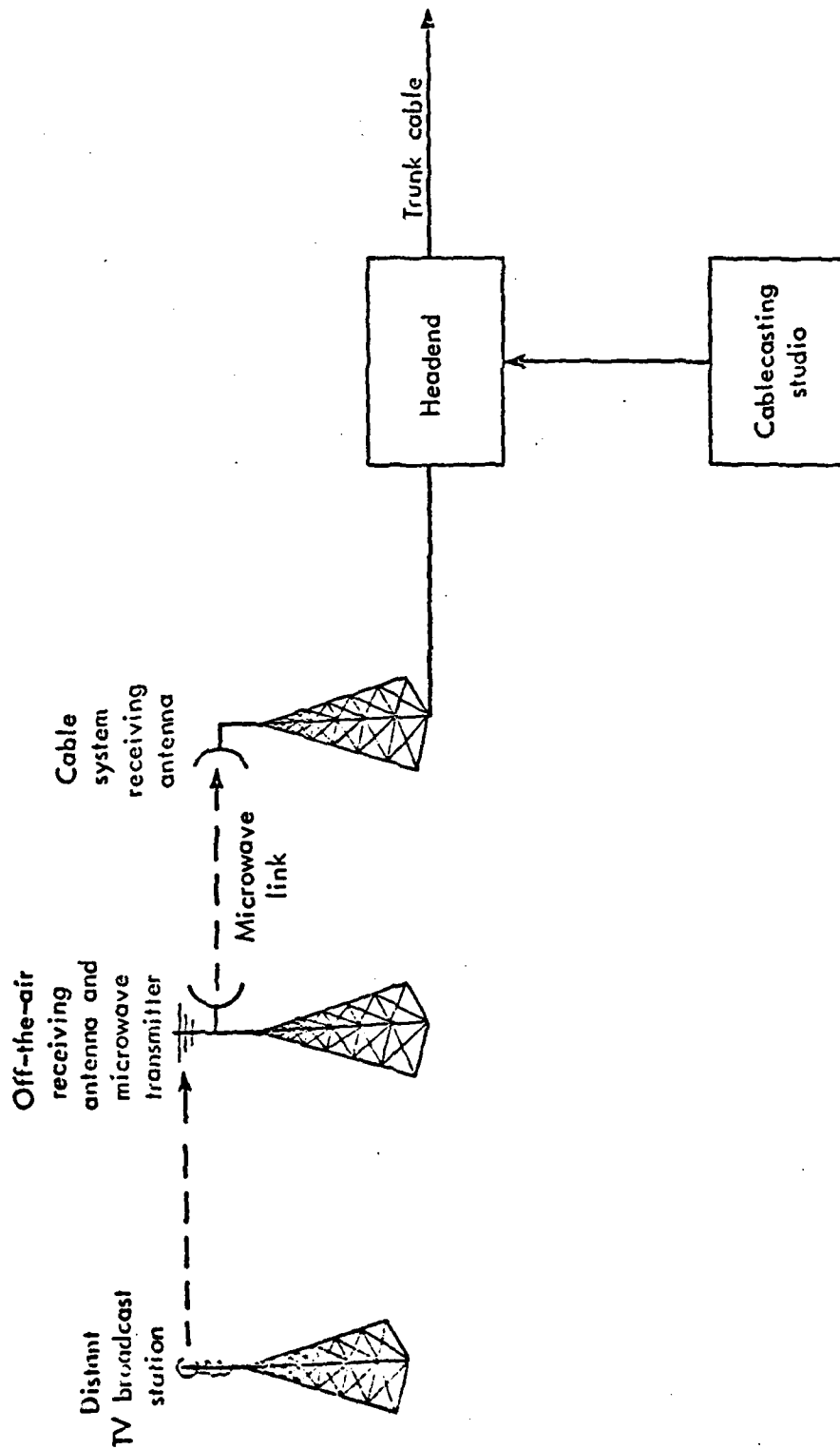


Figure 2 Cable TV System With Distant Signal Transportation and Local Origination.

Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology, p. 6.

house is served by the third part of the system.

The "house-drop" which consists of the connections or taps on the feeder cable, along with a smaller cable and associated hardware entering the house, make up the third part of the system. This small coaxial cable enters the house and is attached to a small coupling device about the size of a clothespin which in turn is attached to the VHF antenna terminals of the television receiver. All received stations whether VHF or UHF are then received on the VHF section of the television set. On a well designed, properly maintained and functioning cable system all signals delivered are received with excellent quality and no atmospheric interference.

The Federal Communications Commission

The Communications Act of 1934, in creating the Federal Communications Commission (FCC) declared that its primary objective should be "to make available, so far as possible, to all people of the United States, a rapid, efficient nation-wide and worldwide wire and radio communications service with adequate facilities at reasonable charges."¹ This broad objective describes standards for two distinct and separate regulatory functions. The FCC is to regulate common carrier functions in much the same way other government regulatory agencies, such as the Interstate Commerce Commission or the Civil Aeronautics Board, perform their regulatory duties. They

supervise industry rates and services to insure reasonable charges and adequate service without damaging the economic stability of the regulated industry. However, when dealing with the broadcast industry the FCC operates in a manner unique among federal regulatory agencies. It does not set rates involved in the economic arena of the broadcast industry; its task is to insure that a public resource, the electromagnetic spectrum, is efficiently managed for the public good.

The Federal Communications Commission was in the beginning an innovative response to the problems of governmental control in an industrial era. Since legislators lacked both time and expertise to enact detailed regulations required for the complex and highly technical communications industry, it was an excellent idea to create an independent agency to perform the necessary regulatory functions. Unfortunately, Congress provided only very general regulatory guidelines leaving the formulation of objectives and long term policy to the discretion of the FCC. In addition no provision was made for the FCC to have an effective information gathering process capable of providing the material necessary to evaluate the potential for public service of new communications techniques.² It was this defect that led the FCC to a policy discouraging the development of television in the United States because "television was regulated by a body that had little time to devote to

it . . . and possessed only a very limited resource of expertise for coping with problems arising from its peculiar technical nature."³ It was this inability to cope with technological change, or the Congress' inability or unwillingness to provide guidance in policy-making that has either caused or compounded many of the problems encountered by the FCC in regards to cable television.

Local Service Policy

"The FCC's basic policy, like that of the Federal Radio Commission (FRC) before it, has often been described as favoring 'local broadcast service'."⁴ It was the policy of the FRC to provide every community in the United States with a radio broadcast station which would carry local programming in the public interest. Unfortunately, broadcast stations in small communities did not have the economic base to make local programming profitable. In addition the public interest favored national or network programs which contributed to the first problem. As a result of economic factors and the policies of the FRC, the urban areas of the country became prolific with radio stations, while millions of people in rural areas were left without radio entertainment, news and current events.

Beginning in 1948 the FCC faced much the same problem with television as faced by the FRC with radio

in 1927. The FCC began to fashion policy for an evolving industry still operating at a financial loss. Obtaining talent for television programs was very expensive, therefore, the stations were awaiting the formation of nationwide networks to lower their costs. The FCC realized if it was to provide local service for the country, it could not be accomplished by distributing the twelve VHF channels of spectrum among 340 cities and towns without creating serious interference problems. Therefore, in 1948 the FCC imposed a freeze on television licensing and spent the next three and one half years redesigning its plan for local service,

At the commencement of the proceedings the FCC had announced its interest in establishing a truly locally oriented licensing system, rather than in simply perpetuating the first-come, first-served philosophy used in radio. The agency envisioned only a single class of television stations, instead of the clear channel, regional, and local divisions of the earlier medium, with contours or coverages as uniform as power and tower-height adjustments would allow. Each channel would be assigned directly to a specific community and reserved until an applicant appeared who was willing to use the channel to serve that community.⁵

The fallacy in the FCC's plan for local service was that it included UHF allocations intermixed in the same television markets with VHF allocations. During this period when the FCC did not license new television stations, nearly all of the 107 stations licensed prior to 1948 were broadcasting on the VHF band. During the freeze period television receiver sales, which by 1952 had totaled twenty million sets,⁶ created a national market

made up almost exclusively of VHF receivers. Since there was practically no UHF broadcast stations, television manufactures had no economic incentive to produce UHF receivers. In addition to its economic drawbacks the UHF allocations suffered from problems relating to the laws of physics.

The UHF stations were broadcasting on frequencies which did not propagate, travel through the air, as well as those of the VHF allocations. The UHF frequencies tended to be reflected more than VHF which caused interference and ghosts on the receivers.⁷ Thus VHF stations experienced a larger and more uniform coverage area than UHF, resulting in a greater viewing audience and, therefore, a stronger economic base than the UHF stations.

The founders of the Dumont Television Network had made a strong plea to the FCC for not approving the localism policy, citing all the problems to be encountered by the broadcasters. They argued that smaller communities within appropriate range of urban areas should obtain service from stations in the urban areas rather than allow small stations to try to operate from a too small economic base. The economic realities of the television industry supported the Dumont approach. In the present day advertiser supported commercial television system where profits are a function of audience size, local stations have been unable to generate the revenue necessary for local production of quality programming suitable to the

specific interests of the communities they serve.⁸
 Nevertheless, the FCC prevailed and the localism policy was decided upon as the best way to serve the public interest.

The Void In Television Service

Even though the FCC had authorized almost fifteen hundred channel allocations for UHF broadcasting in its Sixth Report and Order of 1952, only about one in ten of these channels had been requested by 1956 in an industry whose overall revenues had tripled between 1952 and 1956.⁹

Table 1 UHF Stations in Operation, 1952-56

	1952	1953	1954	1955	1956	Total
Going ON	6	117	25	9	6	163
Going OFF	0	2	29	27	14	72
Total ON	6	121	117	99	91	91

SOURCE: U.S., Congress, Senate, Committee on Interstate and Foreign Commerce, *Television Inquiry, Television Allocations*, 86th Cong., 2d sess., 1960, pt. 8, p. 4572.

Source: Don R. LeDuc, Cable Television and the FCC, p. 61.

By 1958 the commission was willing to admit that the UHF experiment, which would have created three fourths of all television service, had been a disappointment. According to the FCC the failure was attributable to inferior UHF technology,

The headstart of the VHF systems, the present disparity in performance between UHF and VHF transmitting and receiving equipment, and the small number

of sets . . . capable of receiving . . . UHF signals are the principal reasons for the difficulties. Other factors [advertiser and network preference for VHF stations] have flowed from the principal reasons and have aggravated UHF difficulties.¹⁰

The economic problems of UHF television stems from the way commercial broadcasting is financed. Broadcast stations sell time to businesses to advertise their products in the hope that viewers will purchase their products. The amount of money a station can charge an advertiser is based directly on the number of people who view the station's programming during the time period being sold. Therefore, the greater the audience the higher the rate the station can charge. However, if the station has too few viewers, it cannot charge enough for advertising and becomes unprofitable.

The FCC realized this economic fact in 1959 admitting that,

UHF stations tend to persist mainly in those areas where only negligible VHF service is available to the community. . . . Outside of the top 103 markets, UHF is in operation in 43 communities; all but five of these are UHF only. . . . The fact that the UHF only market is typically small leads, in most cases, to unprofitable operation for UHF.¹¹

Thus the FCC recognized that no station, whether VHF or UHF, could operate profitably in a vast majority of the twelve hundred communities outside the top 100 markets for which allocations had been made.

In an effort to increase viewing audiences and cut production expenditures many television stations turned to national network affiliation for programming. By 1956

eighty percent of all television revenues was earned at the national level. The average affiliate's network outlet role grew from thirty-nine hours per week in 1954 to sixty-eight hours per week in 1959.¹² While national network programming continued to grow with the public's increasing appetite for it, UHF stations continued to be unprofitable and disappear off the air. As a result, about one half of the thirty-four million television homes, or seventy percent of the population in 1956, could not receive three network signals from the spectrum.¹³

By ignoring economic, technological, and demographic factors in its 1952 frequency allocation plan, the FCC had provided the perfect arena for the beginnings of the cable television industry. Since the gaps the FCC had left in local television coverage had no one willing to accept the frequency allocations, the public was left with no television service. Local businessmen began to promote cable television service to fill this void and bring all three television networks to the people.

The Beginning of CATV

Television waves do not bend appreciably around obstacles, thus the maximum range of television signals is on the order of fifty to one hundred miles. The actual range in any one direction is determined by both the strength of the signal radiated by the transmitter,

and the height of any obstacles between the transmitter and the receiver. When commercial television broadcasting began in the late 1940's, many people were unable to receive quality television pictures either due to high terrain between them and the television transmitter, or because they lived too far from the transmitter for the signals to reach them. For the people who were close enough to urban areas with broadcast television to receive the signals, but were cut off by mountains, this was a particularly bad situation. The television signals were there in the air, they just could not obtain an antenna high enough to intercept them. It was not long before people realized that if they put an antenna on the high terrain overlooking the television transmitter, and connected a wire from the antenna to their television sets, they could enjoy the new communications media called television.

There is considerable controversy over who made the first such remote antenna arrangement, but it is generally agreed that such service began in at least three mountainous states in 1949.¹⁴ In Lansford, Pennsylvania, a television salesman named Robert J. Tarlton was having great difficulty selling TV sets because the TV reception in Lansford was very poor.¹⁵ The nearest television stations were in Philadelphia, sixty-five miles away. The signals reaching Lansford were very weak, and further blocked by a mountain that overshadowed the town. Tarlton

formed a company called the Panther Valley Television Company and built a tall master antenna atop the mountain to intercept the faint Philadelphia signals. He then amplified the signals and sent them down into the valley on coaxial cable strung on poles. His company offered to hook customers up to the cable for a fee. Television starved residents of Lansford quickly began buying TV sets from Tarlton and subscribing to his new television service. They received three Philadelphia channels with greater fidelity and clarity than did many of the people living within ten miles of Philadelphia.¹⁶

CATV Fills the Void

Although CATV began in areas where television reception was hampered by natural barriers, it began to increase rapidly into areas where network programming was inhibited by FCC imposed barriers. The ideal location for a CATV system was in a community located just beyond the effective coverage of two or three television stations.¹⁷ The close parallel between the growth of television and the growth of CATV systems is illustrated by the following table:

Table 2 Television and CATV Growth, 1952-59

Year (1 January)	Number of TV Stations	TV Audience (In Millions)	Number of CATVs ^a	CATV Subscribers ^a (In Thousands)
1952	108	15	70	14
1953	120	20	150	30
1954	356	26	300	65
1955	411	30	400	150
1956	461	34	450	300
1959	510	43	560	550

SOURCE: *Television Factbook*, service vol. 39 (Washington, D.C.: Television Digest, 1970), pp. 72a, 79a.

NOTE: For an annual comparison of TV-CATV growth, see Appendix A.
a. Estimated.

Source: Don R. LeDuc, Cable Television and the FCC, p. 70.

Broadcasters were sure that their growth would mean the end of the need for CATV service. However, as long as there remained communities unsaturated with television programming there was a desire for cable television.

One such unsaturated city was San Diego, California. In 1961 San Diego was served by two local VHF stations and a third VHF station in Mexico, all providing the city with complete network coverage. Into this television market came a cable television system delivering full Los Angeles television service to San Diego viewers. Since San Diego was already served with three network stations, what the viewers were buying was the four independent stations that served Los Angeles with sports, old movies, reruns of network programs, plus the local Los Angeles services provided by the three network affiliates. By 1969 the San Diego system was the largest cable television system in the United States, serving twenty-five thousand subscribers.¹⁸

Cable television began to come into its own when J. E. Belknap and Associates, a partnership of Poplar Bluff, Missouri, businessmen finally succeeded in 1954 in securing an FCC license to construct a microwave relay system to carry television signals from Memphis, Tennessee, to Poplar Bluff. Now CATV transformed from community antennas to program distributors, changing in the process from marginal competitors to major challengers of many small broadcasters.¹⁹ Now that the FCC was granting CATV the privilege of microwave relay without imposing restrictions on its use, cable was freed from its dependence on local television reception and given the capacity to invade almost any market in the country.

Broadcaster Control of CATV

Since 1959 the FCC had consistently supported the principle that the broadcasting stations should be able to dictate the terms under which cable systems might carry their programming. Naturally, this was appealing to the commission since it would protect broadcasters from economic harm while relieving the FCC from any administrative responsibility for its operation. The idea was also warmly received by the broadcast industry which hoped to establish the legal authority to control the distribution of its programming in several legal cases. The two cases crucial to the broadcasters' cause, Intermountain Broadcasting vs. Idaho Microwave and Cable

Vision vs. KUTV,²⁰ advanced three distinct but inter-related legal theories to justify the denial of cable access to television stations' programming. If any one of the stations' contentions of exclusive contract, nonexclusive contract, or unfair competition was sustained by the courts; the stations could have begun to stop any further unauthorized CATV use of their transmissions.

Both cases began from a single dispute in 1959. Cable Vision, the CATV system in Twin Falls, Idaho, and its microwave supplier, Intermountain, charged several television stations, including three Salt Lake City broadcasters, with conspiring to destroy the cable television industry through actions in violation of federal antitrust laws. Rather than await the courts' decision, the broadcasters filed a countersuit to bar Intermountain from relaying their network programming to the Idaho CATV. The Intermountain controversy was settled in 1961 when the court rejected two theories of control by declaring that stations had no authority to restrict use of their signals after transmission, and even if they had such rights, cable carriage would not be an unfair use of their transmissions.²¹ The broadcasters lost their final hope for control when the Cable Vision case was decided against them. The broadcasters could protect their programming from unauthorized use only if they were able "to demonstrate a protectable interest

by virtue of the copyright laws or bring themselves within the contemplation of some other recognized exception to the policy promoting free access to all matter in the public domain."²² With the Cable Vision decision came the end of attempted restraint on CATV growth by the broadcast industry through the court system. Broadcasters now turned their attention to the FCC for relief.

CATV Growth Toward the Urban Areas

The early 1960's was a time of growth for both the broadcast and cable television industries. Over the air television began to grow into the East South Central and Mountain states. As cable systems followed the broadcasters out into these areas they found in many cases that potential subscribers were too sparsely located to make CATV establishment profitable. Since costs for CATV are basically a function of cost per mile of cable construction and profits are a function of the number of subscribers per mile, concentration of subscribers is the key to profitability. Not even consolidation of several CATV systems would improve the economic potential for many rural areas.

Therefore, seeing no financial advantage in consolidation and the unprofitability of many rural areas, CATV turned to the urban areas for future growth. Meanwhile, the spread of color television presented CATV with new opportunity in urban markets. Since color television

transmission is more sensitive to over the air interference than is black and white transmission, CATV could offer the urban viewers something they could not get anywhere else; a high quality color picture.²³ However, this ambitious new role brought the cable industry into conflicts that it had not previously faced. It now confronted a powerful coalition of major market broadcasters, program syndicators, national networks, and others concerned with controlling the flow of television programming into the urban markets.²⁴ In addition the potential for signal importation seemed to threaten the audience base of the urban UHF stations, a class of broadcasters in great favor with the FCC. The emergence of CATV from rural areas to the cities also brought it from obscurity to the center stage of the regulatory arena.

Summary

While the FCC was created by the Communications Act of 1934 and replaced the FRC, it inherited many of the FRC's problems. In trying to promote a system of local television service, the FCC created the breeding grounds for a new telecommunications industry. As television became more popular with Americans, the demand increased for additional television signals. Since the FCC's local service plan had inadvertently created voids in television reception, CATV systems

moved in to fill the demand. As the cable television industry grew, television broadcasters began to fear economic damage to their industry and moved to have this threat regulated.

FOOTNOTES

¹Don R. LeDuc, Cable Television and the FCC, pp. 23. (footnoted as USCA, Title 47, para 151 (Chapt. 652, Title I, Sect. 1, 48 Stat. 1064)).

²Ibid., p. 28.

³Ibid., p. 28, (footnoted as Robert H. Stern, "Television in the Thirties: Development, Control, and Government Concern," American Journal of Economics and Sociology, 22, No. 3 (July, 1963)).

⁴Ibid., p. 42.

⁵Ibid., p. 55.

⁶Martin H. Seiden, Cable Television USA, p. 13.

⁷Richard Olin Berner, Constraints On The Regulator Process, p. 12.

⁸Ibid., p. 11.

⁹LeDuc, op. cit., p. 60.

¹⁰LeDuc, op. cit., p. 60, (footnoted as FCC, Twenty-Fourth Annual Report for the Fiscal Year 1958, p. 102.

¹¹LeDuc, op. cit., p. 62, (footnoted as U.S. Congress, Senate Committee on Interstate and Foreign Commerce, "Television Inquiry, Television Allocations," 86th Cong., 2d Sess., 1960, pt. 8, p. 4587.

¹²LeDuc, op. cit., p. 64, (footnoted as Herman W. Land Associates, Television and the Wired City, Washington D.C., National Association of Broadcasters, 1968, p. 82.

¹³LeDuc, op. cit., p. 66.

¹⁴George R. Townsend, Cable: A New Spectrum of Communications, p. 8.

¹⁵Ralph Lee Smith, The Wired Nation, p. 3.

¹⁶Ibid., p. 4.

¹⁷LeDuc, op. cit., p. 71.

¹⁸Sloan Commission, On the Cable, p. 24.

¹⁹LeDuc, op. cit., p. 76.

²⁰Intermountain Broadcasting vs. Idaho Microwave,
196F Supp. 315 (S.D., Ida 1961); Cable Vision vs. KUTV,
211 F. Supp. 47 (S.D., Ida. 1962) 355 F.2d. 348 (9th Cir.
1964), cert. den. 379 U.S. 989 (1965).

²¹LeDuc, op. cit., p. 131.

²²Cable Vision vs. KUTV, 355 F.2d. 348.

²³Sloan Commission, op. cit., p. 26.

²⁴LeDuc, op. cit., p. 119.

CHAPTER II

CATV UNDER FEDERAL REGULATION

Cable television's first contact with the FCC came through its Common Carrier Bureau. Throughout the 1950's this bureau routinely processed CATV microwave applications without any evident regard for the impact they might have on small market broadcasters.¹ The commission itself did not become concerned until 1959 when it issued its "Inquiry into the Impact of Community Antenna Systems."² Although the FCC may have seen a potential threat to local broadcasters, it took no regulatory action.

It was not until Kenneth Cox became Chief of the Broadcast Bureau in 1962 that regulation became apparent. In 1962 Cox persuaded the FCC to deny the application for microwave operation submitted by the Carter Mountain Transmission Corporation.³ Cox based the denial on the contention that the ensuing economic harm to the local television broadcast stations would not be in the public interest.⁴ Having made this determination of economic harm, the FCC then claimed the power to restrict a common carrier in order to avoid economic harm to television broadcasters. Naturally, Carter Mountain appealed the FCC's decision in the courts,⁵ but it challenged only

the authority of the FCC to look beyond a legitimate function of common carriers to judge its long range effects. Thus in denying the appeal by Carter Mountain, the court did not consider the questions of economic impact nor the FCC's authority to regulate CATV systems directly; but it simply affirmed the FCC's power to employ controls over common carriers in order to protect broadcast interests.⁶

Based upon its success in the courts, the FCC began to formulate regulatory procedures for cable television. While the Carter Mountain case expanded its powerbase, the FCC's regulatory foundation was laid in 1958 with the case of Carroll Broadcasting vs. FCC.⁷ The Carroll case was the primary authority for its position that broadcast service could be protected from damage resulting from competition. This in spite of the fact that in deciding the Carroll case the court stated that "private economic injury is by no means always, or even usually reflected in public detriment. Competitors may severely injure themselves to the great benefit of the public."⁸ Don R. LeDuc, a long time observer of the FCC, summed up the situation like this,

Thus, by focusing attention on just one narrow aspect of cable television, its competitive element, the commission not only blurred important distinctions between "public interest" and "broadcaster interests" when applying its restrictions but also obscured any vision of CATV as an integral part of a larger system of electronic mass media. If the FCC had chosen to supervise cable rather than simply to restrain it, jurisdiction might have been exercised without isolating

the elusive variable of CATV impact in each broadcast market. As the Supreme Court would soon point out in the Southwestern Cable case, the agency's power to control cable systems was not uniquely dependent upon the CATV threat, but could as properly be based upon the FCC's general authority to encourage, through broadcast and cable functions, the widest possible range of services in spectrum and wire communications.⁹

Although the FCC had formulated no real long range policy on cable television, it did attempt to conduct an economic study to ascertain the potential danger of CATV to the broadcast media. The FCC requested the broadcast industry collect and analyze economic data to determine the effects of CATV on their industry. The National Association of Broadcasters (NAB) retained a noted economist of the time to carry out the study. However, upon completion of the study the National Cable Television Association (NCTA) challenged the findings. In addition the commission's own economist challenged the findings. No positive correlation could be proven between the declining local advertising revenues of broadcasters and CATV competition. Unable to accurately determine an economic threat to broadcasters, yet fearing one anyway, the FCC went ahead with new proposed rules for CATV.

1965 Report and Order on CATV

Until 1965 the cable television industry flourished under the free enterprise system providing a service to meet a demand. Television broadcasters had looked upon CATV with mixed emotions. On the one hand CATV helped

extend their signals increasing their viewing audiences, and provided UHF stations signal parity with VHF stations. However, on the other hand the large number of signals carried on the cable diluted their audience base among all stations. As noted earlier, when cable television grew into the urban areas the fears increased and the idea of CATV as a benefit diminished. Thus, there followed a flurry of activity by the broadcast industry to seek relief of this threat through the FCC.

At first the issue may seem fairly simple. Should the federal government through the FCC protect local broadcasters from the competition of cable television? However, it is not the policy of the government to interfere unnecessarily with the operation of the free market place. The government regulators see the problem differently. Their primary objective is to protect the public interest. Martin Seiden, a former economist for the FCC gave this example.¹⁰ If a small town is served by only one local television station, and if the population is sufficiently small, CATV could so reduce the size of the local station's audience that the station could be forced off the air. As a result everyone in the town would have to subscribe to CATV, paying a monthly fee for the service, in order to receive television service. At the same time other communities without CATV competition would be receiving free television service from their local stations. In addition the widely

dispersed rural population around the town would not only have lost free over the air television, it possibly could not obtain the cable service and be without any television service at all. This could be the case where the population density of the rural area was so low as to make cable service unprofitable.

Although no broadcaster had actually gone off the air due to CATV competition, the FCC moved ahead with its desire to regulate CATV. The 1965 Report and Order on CATV¹¹ contained two regulatory provisions, one on signal carriage and one on nonduplication of programming. Carriage and nonduplication rules operated at the request of the local stations, therefore, the FCC was placing CATV into broadcaster control. In addition the rules applied only to common carrier served CATV systems.

The report and order required the carriage of a broadcast station's signals by any CATV system utilizing microwave service and located within the broadcaster's predicted grade A contour. CATV systems were relieved of the requirement if the signals substantially duplicated network programming of a signal of a higher grade, and if carrying the signals would prevent the system from carrying a nonaffiliated commercial station or a non-commercial educational station due to limited channel capacity of the cable system.

The nonduplication rules protected the local broadcaster by preventing the microwave served CATV from importing a network broadcast for a period of fifteen

days. This benefit was extended to any station with a microwave served CATV system operating within its grade A or B contours and was carried on the CATV provided that:

1. The system will not be required to protect a station's exclusivity if one or more stations which substantially duplicate its network programming off-the-air place an equal or higher grade signal over the CATV system;
2. The system will not be required to protect a station's exclusivity in non-network programming if any of the stations operating in what is normally considered another market for purposes of program distribution place an equal or higher grade signal over the system.¹²

The 1965 Report and Order was a stopgap measure in that it gave the FCC time to test Congressional and industry reaction. Unfortunately this also gave the anti-CATV forces time to consolidate their position. Before the new regulations had a chance to become established, they were replaced by the FCC's next report and order.

1966 Report and Order on CATV

The FCC's 1966 Report and Order on CATV¹³ extended FCC regulation to govern all CATV systems with its purpose being,

To integrate the CATV service into the national TV structure in such a way as to promote maximum TV service to all people of the U.S., both those who are cable viewers and those who are dependent on off-the-air service.¹⁴

The FCC felt that the new rules were the minimum measures "essential to insure that CATV continues to perform its valuable supplementary role without unduly damaging or impeding the growth of the TV broadcast service."¹⁵ Lastly,

the FCC concluded that its statutory powers included the authority,

To promulgate necessary and reasonable regulations to carryout the provisions of the Communications Act and to prevent frustration of the regulatory scheme by CATV operations, irrespective of the use of microwave.¹⁶

The 1966 Report and Order on CATV included modification of the carriage and nonduplication rules plus the issuance of a new major market policy for all CATV systems. The nonduplication period was reduced from the fifteen day requirement of the 1965 rules to a single broadcast day. The carriage rules remained essentially unchanged from the 1965 rules.

The major impact of the 1966 rules was felt in the major market distant signed policy. This policy was based on the impending competition of cable television and the UHF stations in the urban areas. The FCC concluded that allowing CATV unrestrained entry into the major markets would be contrary to the public interest because,

(1) If CATV were to undermine the development of UHF, it would mean that people in the urban or more built up areas would be getting more additional service at the expense of those in rural areas; (2) CATV is a form of pay TV for if it blocks UHF development those who cannot afford CATV would be deprived of service; (3) CATV does not serve as an outlet for local self-expression.¹⁷

The major market policy presents an inconsistency in FCC reasoning. While the FCC was limiting distant signals in major markets, it was more liberal with its

policy in the smaller markets. However, in the small markets with only one or two local stations, the addition of distant signals would have a far greater impact than imported signals would have in major markets where there are five to seven local stations. It would appear that the true beneficiaries of the 1966 Report and Order were not the UHF stations, but the big city VHF giants.¹⁸ Limiting cable expansion in the major markets also re-established the competitive advantage of VHF over UHF since cable helps UHF overcome its handicaps of tuning and signal characteristics. Ralph Smith, in his book, The Wired Nation, illustrates this point with the example of Greensburgh, Pennsylvania.¹⁹ A CATV system operating in Greensburgh is within the Pittsburgh television market area. Thus, in accordance with the 1966 rules that system would carry all stations within the Pittsburgh market, but would be precluded from carrying any distant signals. But, two such distant signals were available to some Greensburg residents using a standard roof top antenna. Therefore, the CATV system offered fewer viewing options than were available without cable, a circumstance considerably limiting the potential for cable subscription. In this instance, not only was cable disadvantaged, but the Pittsburgh UHF was kept at a competitive disadvantage to the Pittsburgh VHF stations since few residents would subscribe to cable where UHF and VHF signals were on a more equal footing.

Although there were several legal challenges to the FCC's authority to regulate cable television, the Southwestern Cable²⁰ case was one of the deciding ones. Following a FCC denial to allow Southwestern Cable to carry signals from Los Angeles into the San Diego market, the cable company obtained a California federal court order to prevent the FCC from banning their signal importation. The FCC appealed the court's decision and on June 10, 1968, the U.S. Supreme Court issued a unanimous decision reversing the lower court and affirming the FCC's authority.

The FCC's next court battle was not such a one sided victory. In October 1969, the FCC issued new rules²¹ requiring CATV systems with more than thirty-five hundred subscribers to have cablecasting equipment and to originate programs beginning April 1, 1971. Prior to the origination deadline, Midwest Video, a cable system serving more than thirty-five hundred subscribers, requested and obtained from the Eight Circuit, U.S. Court of Appeals, an injunction restraining the FCC from enforcing its cablecasting rules. The court, in granting the injunction, declared that since Congress had not acted to extend the cable jurisdiction to the FCC, the only authority it could exercise was that reasonably related to broadcasting--restricting cable services which threatened the quality of the broadcast service provided to the public. Program origination had no relationship to the objective, and

therefore, no matter which rule the FCC might choose to adopt concerning this service, it would be "without authority to impose it."²²

In June 1972 the U.S. Supreme Court reversed the lower court's decision, but by the narrowest of margins, a five to four decision. The four justices in the majority believed that the Southwestern Cable case had established general FCC jurisdiction over cable television and that, since cablecasting appeared to "promote the general interest" within that context, it was a logical extension of that authority.²³ The four justices in the minority felt that the decision was adding a provision to the Communications Act transforming "CATV carriers" into "broadcasters." Instead of judicial action, their opinion maintained,

That requires a brand new amendment to the broadcasting provisions of the Act which only Congress can effect. The Commission is not given carte blanche authority to initiate broadcasting stations; it cannot force people into the business.²⁴

In casting the deciding vote Chief Justice Burger declared,

Candor requires acknowledgement for me, at least, that the Commission's position strains the outer limits of even the open-ended and pervasive jurisdiction that has evolved by decision of the Commission and the courts.²⁵

1972 Report and Order on CATV

The next major CATV regulatory document began as a letter submitted by the FCC to Congress on August 5, 1971.²⁶ Although the contents of the letter never became law, it

was the basis for the 1972 rules on CATV. The FCC rejected its long established philosophy that cable television was a threat to UHF development and should be kept out of the nation's major markets. In establishing the new rules, which superceded all earlier rules, the FCC stated that,

We envision a future for cable in which the principal services, channel uses and potential sources of income will be from other than over-the-air signals . . . It is our intention to insist on the expansion of cable systems to accommodate all reasonable demands. . . . Accordingly . . . we believe that 20 channel capacity is the minimum consistent with the public interest. . . . We emphasize that the cable operator cannot accept the broadcast signals that will be made available without also accepting the obligation to provide nonbroadcast bandwidth and the access services described below. The two are integrally linked in the public interest judgment we have made.²⁷

The 1972 rules required CATV systems to provide access channels for the public. Cable systems had to provide,

. . . . One dedicated, noncommercial public access channel without charge at all times on a first-come, first-served nondiscriminatory basis. And without charge, one channel for educational use, and without charge another channel for local government use.²⁸

The FCC established a distant signals policy based on the size of the television markets. It specified the numbers of TV broadcast stations that a CATV may carry divided up between network affiliates, independent stations and noncommercial stations.

In November 1971 the Office of Telecommunications Policy (OTP) arranged a compromise on television exclusivity of programming between the National Cable Television Association (NCTA) and the National Association

of Broadcasters (NAB). The new exclusivity rules established in the 1972 regulations allowed CATV a foot in the door to the major market, although the effect of the provisions was to render imported distant signals less competitive to the local stations. The compromise was included in the 1972 rules in the following form:

In markets 1-50--cable systems, on receipt of appropriate notification, will be required to refrain from carrying syndicated programming on a distant signal as follows: (1) during a pre-clearance period of one year, syndicated programs sold for the first time anywhere in the United States for television broadcast exhibition; (2) during the run of the contract, programs under exclusive contract to a station licensed to a designated community in the market.

In markets 51-100--cable systems, on receipt of appropriate notification, will be required to refrain from distant signal carriage of a syndicated program if the program is under exclusive contract to a station licensed to a designated community in the market and if the program will be carried in prime time.

Exceptions to this program exclusivity in markets 51-100 apply in the following circumstances:

(1) for off-network series programs:

- (A) prior to the first non-network broadcast in the market of an episode in the series;
- (B) after a first non-network run of the series in the market or after one year from the date of the first non-network broadcast in the market of an episode in the series, whichever occurs first;

(2) for first-run series programs:

- (A) prior to the first broadcast in the market of an episode in the series;
- (B) after two years from the first broadcast in the market of an episode in the series;

(3) for first-run non-series programs:

- (A) prior to the date the program is available for broadcast in the market under the provisions of any contract or license of a television broadcast station in the market;
 - (B) after two years from the date of such first availability;
- (4) for feature films:
- (A) prior to the date such film is available for non-network broadcast in the market under the provisions of any contract or license of a television broadcast station in the market;
 - (B) two years after the date of such first availability;
- (5) for other programs: one day after the first non-network broadcast in the market or one year from the date of purchase of the program for non-network broadcast in the market, whichever occurs first.²⁹

Post 1972 FCC Regulation of CATV

The FCC has proposed numerous rules and enacted some in the past six years. Their impact on CATV industry development on regulation has not been great.³⁰ In the field of program nonduplication, the FCC reduced the extent of protection, exempted some systems with fewer than one hundred subscribers, and made changes in the Rocky Mountain Zone. The commission also made minor changes in its distant signal rules and in its signal carriage rules on sporting events. However, the rules on limitation of distant signals, and extensive non-network exclusivity protection, and the access requirements for major market systems remain essentially unchanged.

In the federal courts the FCC suffered a setback to its rules of program carriage on pay cable. In Home Box Office, Inc., vs. FCC³¹ pay cable interests challenged the FCC's power to enforce a formula limiting their distribution of nonbroadcast programs and won on the grounds that the FCC did not have the statutory power to enforce the formula.

In the Eighth Circuit Court of Appeals the FCC suffered a setback to its public access rules.³² On February 21, 1978, the court sided with Midwest Video Corporation of Little Rock, Arkansas, finding that the FCC's public access rules were beyond its jurisdiction, and that they were inadequately supported.³³ In this decision the court noted that the FCC's authority is confined to communications by wire or radio and broadcasters using radio channels. Because cable systems are neither common carriers nor broadcasters, the court said there could be no Congressional intent as to their regulation.³⁴ While this decision may appear favorable to CATV, the FCC wrote the 1976 access rules to pre-empt state and local decisions which were having an uneven and adverse impact on many cable systems.

Summary

Since 1959 the FCC has asserted jurisdiction of cable television in a hesitant and stepwise manner. In 1959 it agreed that cable was beyond its regulatory

authority; but in 1962, without a formal declaration of authority, the FCC in the Carter Mountain case began de facto regulation of microwave served CATV systems. In 1965 the commission claimed the regulatory jurisdiction it had asserted in 1962. In 1966 it extended its authority to all CATV systems in order to protect its overall television broadcasting plan. Then in 1972 it began to regulate not only CATV signals, but other aspects of the cable industry. The absence of Congressional guidance in policy-making and the FCC's inability to cope with the evolving complexity of CATV prevented the formation of long-range policy for the cable television industry. This absence of long-range policy caused the FCC to pursue what appeared to be an erratic course of regulation. This is illustrated by the FCC's desire to protect its television regulatory scheme in its 1965 rules, but then changing direction in its 1966 rules to protect television broadcasting and copyright holders in the major television markets.

FOOTNOTES

¹Richard Olin Berner, Constraints On The Regulatory Process, p. 12.

²26 FCC p. 403 (1959).

³Carter Mountain Transmission Corp., 32 FCC 459 (1962).

⁴Berner, op. cit., p. 13.

⁵Carter Mountain Transmission vs. FCC, 321 F.2d. 359 (D.C. Cir. 1963), Cert. denied. 375 U.S. 951(1963).

⁶Don R. LeDuc, Cable Television and The FCC, p. 122.

⁷Carroll Broadcasting vs. FCC, 258 F.2d. 440 (D.C. Cir. 1958).

⁸Ibid., p. 443.

⁹LeDuc, op. cit., p. 141.

¹⁰Martin H. Seidon, Cable Television USA, p. 4.

¹¹1965 Report and Order on CATV, 38 FCC 638(1965).

¹²Ibid., para. 98.

¹³1966 Report and Order on CATV, 2 FCC 2d. 725(1966).

¹⁴Ibid., para. 47.

¹⁵Ibid., para. 47.

¹⁶Ibid., para. 5.

¹⁷Ibid., para. 124.

¹⁸Ralph Lee Smith, The Wired Nation, p. 51.

¹⁹Ibid., p. 51.

²⁰United States vs. Southwestern Cable, 392 U.S. 157(1968).

²¹"First Report And Order," Docket 18397, 17 RR 2d. 1570.

²²Midwest Video vs. FCC, 441 F.2d. 1322(8th Cir. 1971), p. 1328.

²³United States vs. Midwest Video, 406 U.S. 649, p. 675.

²⁴Ibid., p. 680.

²⁵Ibid., p. 676.

²⁶1972 Report and Order on CATV, 36 FCC 2d. p. 143, Appendix C, (1972).

²⁷Ibid., para. 120.

²⁸Ibid., para. 121.

²⁹Ibid., para. 100.

³⁰Subcommittee on Communications of the Committee on Interstate and Foreign Commerce, U.S. House of Representatives, Cable Television, Promise Versus Regulatory Performance, p. 16.

³¹Home Box Office, Inc., vs. FCC, 567 F.2d. 9 (D.C. Cir., 1977).

³²"Report And Order in Docket No. 20508," 59 FCC 2d. 294.

³³Midwest Video Corp. vs. FCC, 571 F.2d. 1025 (8th Cir. 1978).

³⁴Ibid., pp. 1035-36.

CHAPTER III

CATV WITHOUT FEDERAL REGULATION

In 1976 the staff of the Subcommittee On Communications of the Committee On Interstate And Foreign Commerce, U.S. House of Representatives completed a study of cable television and its regulation by the federal government. In their report the staff felt that the present amount of federal regulation was not necessary and recommended that new legislation be proposed to lessen the FCC control over CATV.¹ Following approximately twenty months of subcommittee oversight hearings, panel discussions, meetings and staff studies of the telecommunications industry, new legislation was proposed. On June 7, 1978, Lionel Van Deerlin, Chairman, House Commerce Subcommittee on Communications made public the 217 page Communications Act of 1978 (House Bill Number HR13015).² The idea of this bill as explained by Van Deerlin was "where possible, we're going to be trying to get the federal government out of the business of regulation."³ Besides altering the federal regulatory role in radio and television broadcasting and licensing and telephone company operations, this bill proposes the removal of all federal regulatory controls on the cable television

industry. The bill is a masterpiece of compromise and trade-offs,

In practically every section of the legislation the trade-off strategy was apparent. For example, [CATV would be totally deregulated], AT&T would be granted entry into the cable television and computer services fields, but would in turn lose its profitable Western Electric subsidiary. Broadcasters would be required to pay spectrum fees, but would be granted longer license terms and freedom from a variety of existing government regulations.⁴

It was the compromise and trade-offs that brought early praise, but cautious optimism, from both CATV and broadcast representatives.

The Community Antenna Television Association (CATA) made public their position at their annual seminar in Oklahoma in July 1978. The board of directors stated that it has two reservations about the bill as drafted,

CATV has always supported the elimination of all unnecessary regulations on cable television and therefore applauds the main thrust of the rewrite which disposes of all federal regulation of cable and promotes free, open marketplace competition. CATA questions, however, whether such competition can truly be accomplished by allowing the monopoly power of the telephone companies to be unleashed. The Association is taking the position of supporting the judgment of both the Justice Department and the FCC that experience has already proved that the telephone monopoly cannot be adequately controlled in unregulated marketplace competition. CATA will urge congress to maintain the existing restrictions on the entry of the telephone companies into competitive communication services.

The board further noted that while the proposed bill has been introduced with the announced intention of eliminating federally mandated broadcast signal carriage restrictions on cable television, the language of the bill is not sufficiently precise to assure that signal carriage regulation at the non-federal level are similarly prohibited. The association will submit language to the communications subcommittee to clarify this provision of the bill.⁵

Speaking for the National Cable Television Association, president, Bob Schmidt said,

We applaud the efforts of Congressmen Van Deerlin and Frey to develop a comprehensive, updated, consumer-oriented Communications Act. If total deregulation is proposed, the viewer will benefit. But to insure that regulations dismantled at the federal level are not reassembled at the state level, federal guidelines are necessary.⁶

To the individual operator the new Communications Act, if passed into law as written, would mean elimination of the signal carriage rules, together with syndicated exclusivity, technical standards and franchise certification. The policies of mandatory access and minimum channel capacity would no longer be in force. Finally, the recently enacted pole attachment law would be repealed.

In summary, the cable television industry approves of federal deregulation in principal, but maintains two great fears. One is unrestrained competition with the telephone industry (telco); and the other is unrestrained regulatory control of local CATV by state and local Public Utility Commissions (PUC).

CATV in the Competitive Marketplace

Prior to the discussion of CATV competition, an understanding of who competes with whom must be reached. When television broadcasting began in the late 1940's, it began to compete with the nation's mass media, radio. Television competed for both radio's listening audience and radio's advertising clientele. As television

programming began to expand, people stayed home to watch instead of going out to the movie theaters. Finally, television with its news and special programming greatly contributed to the demise of LOOK and LIFE Magazines. Therefore, when discussing CATV and competition, it should be remembered that all forms of information media compete in one way or another with each other.

The federal deregulation of the cable television industry presents two concepts of competition. The first being competition between television broadcasters and CATV and the latter being competition between CATV and the telephone company.

In 1972 WLVA-TV of Lynchburg, Virginia, took the FCC to court when the FCC granted WRFT-TV of Roanoke, Virginia, a construction permit without a hearing to determine the possible diminution of service resulting from two stations with the same network affiliation in the same market area.⁷ Although the court affirmed the Commission's actions, the FCC has maintained its signal rules on CATV in order to prevent diminution of service in markets where local broadcasters might go out of business due to competition from CATV systems in the same market. Diminution of service must be viewed in terms of the service available to the public rather than the fate of particular technologies.⁸ As previously stated broadcast television is in competition with radio, however, radio broadcasting has made radical programming changes such as all music stations,

all news stations, and minority and ethnic programming stations in order to compete for the public's interest. As television gained in popularity some movie theaters went out of business, however, no overall diminution of the motion picture industry has been noted. Similarly, the emergence of video recorders and video computer games present a competitive threat to television, pay cable television and movie theaters, but will probably not put any of these out of business. Any business operating on the margin of profitability such as an independent UHF station, is subject to and sensitive of any source of competition. It is this perspective that should be taken when concern is expressed about CATV competition with local broadcasters.

The fear of diminution of service leads to the fear of loss of public interest broadcasting. Broadcasters claim they use some of their profits derived from advertising revenues to support their obligation to act as a fiduciary to present local or informational programs on "matters of great public concern."⁹ When the local CATV fragments their viewing audience causing a corresponding loss in advertising revenue, they can no longer provide this support which could result in the loss of their broadcast license. However, broadcasters are required to perform their public interest functions regardless of profit or loss;¹⁰ and not once has the FCC denied a broadcast license on the grounds that the applicant had not minimally served as a local or

informational outlet.¹¹ In addition local news programming represents the bulk of the local or informational programming produced by broadcasters¹² and is so important as a "lead-in" to the remaining schedule, there is fierce competition in this area.¹³

In not all cases is CATV a competitive threat to over-the-air broadcasting. By providing improved signal reception to viewers, the CATV system can add to the broadcasters' revenues by increasing their viewing audience. Rolla Park of the Rand Corporation believes that the likely effect of cable on UHF is "very small compared with the revenue increase that will result from complete UHF penetration, elimination of the UHF handicap, and other growth factors."¹⁴ Rather than detrimental, cable television had a very positive effect on the UHF stations of Toronto, Canada. Three new UHF stations began operation between 1970-1974. Toronto has a very substantial cable system (sixty-seven percent penetration in 1974), and in these cable homes, the new UHF stations were viewed much more frequently because there was then no UHF handicap.¹⁵ Therefore, with the CATV system the UHF stations had a greater viewing audience on which to base their advertising rates than would have been possible without the CATV system.

In its comments submitted to the FCC on elimination of signal carriage rules, the NCTA reported that local broadcast stations lose an average of less than eight

percent of their audience to cable television. Their research showed that some UHF stations thought to be those most vulnerable to cable actually registered an audience increase averaging five and one half percent.¹⁶ The NCTA report also stated that a decline in viewing audience does not result in the direct and equal loss in local station revenues, because revenues are influenced by other major factors such as market size, availability of advertising time, and advertising demand.

In any case, some broadcasters will win and some will lose in competition. Changes will have to be made in order to maintain a profitable share of the viewing audience.

The latter form of competition between CATV and Telco may or may not materialize as feared by the cable television industry. Total federal deregulation of CATV under the new Communications Act would also allow telephone companies to enter the cable television market. Since telephone companies already have wires strung to virtually every home in the country, this system seems to some to become a carrier for a variety of audio, non-video, and video services, including those already carried by CATV.

Appearing before the House Communications Subcommittee NCTA president, Bob Schmidt, testified that,

The history of the communications industry is littered with anticompetitive abuses by telephone monopolies, and shows a smothering growth of bureaucratic power through statutory loopholes. If Congress

ignores that history in rewriting the nation's basic communications law, developing new consumer services will be stifled.¹⁷

Also testifying was William Bresnan, President of the Cable Television Division of Teleprompter Corporation who best expressed the industry's concern. Tracing the history of telephone companies' involvement in cable, he concluded that they have:

- 1) Abused their monopoly position to prevent awarding of franchises to competing applicants.
- 2) Refused to grant access to their poles while granting access to telephone-affiliated companies.
- 3) Delayed construction of independent cable systems while expediting construction of their own.
- 4) Required as a condition of pole attachment agreements that the cable operator agree to offer only one-way transmission of the off-the-air TV signals.
- 5) Leased channel capacity to cable operators on the condition that they could reclaim the bandwidth whenever they desired.¹⁸

Bresnan went on to say that the industry sought no special protection from any technology; they wanted only a free marketplace where the independent operators would be free to choose whether to lease channel capacity from the local telephone carrier or build their own distribution system.

On the other side of the coin, William Ellinghaus, Vice Chairman, AT&T, has stated, "We have never been in nor do we have any plans to be in the CATV business. We have never and have no plans at the present time. That is our policy."¹⁹ But while the telephone giant does not want a

piece of the CATV pie, the nation's third largest carrier might. Charles Wohlstatler, board chairman of Continental Telephone Corporation, in referring to Ellinghaus' statement said:

Continental's position would not exactly track the Bell System's. We warned CATV in local communities--where the economies were very much in our favor--(that we could provide) the service and that we had the telephone poles, the maintenance, and the billing procedures, but we were directed to divest. We propose that if competition is the order of the day in telecommunications, it should be the order of the day in CATV.²⁰

For now most telephone companies are preferring to wait before possible entry into the CATV area. Citing the costs of stringing cable and other capital outlays, most telcos are waiting until further depreciation of present equipment has taken place. Customer demand for new telephone company services will have to be determined and the capabilities of new technologies, such as fiber optics, will have to be evaluated prior to the commitment of capital for expansion into the CATV arena.

Finally, in defending the possible return of telephone companies into the CATV marketplace, Representative Van Deerlin said in a recent speech: "This is a logical, and perhaps necessary extension of services now offered by telephone companies,"²¹ Van Deerlin cited a number of provisions in the new Communications Act designed to prevent abuses of the past. These include federal approval before offering CATV services, creation of a separate cable TV subsidiary by the telephone company, and maintenance of meticulous accounting records. Summing up,

Van Deerlin said that "nothing in the rewrite . . . diminishes the force of antitrust laws,"²² Nevertheless, CATV industry fears of competing with the telephone companies are not without justification, as illustrated by their fight for fair pole attachment rights.

Pole Attachment Agreements

A primary concern and a major problem for the CATV industry for the past twenty-five years has been the need to attach their cable to existing utility poles. The very early community antenna systems strung their cables in trees or erected their own poles to hang cable on. However, as CATV systems grew they found it necessary to obtain a city or county franchise, the right to operate their business within a given area, which included the legal right to run cable through the area and into the subscribers' homes. Since the CATV cable paralleled the existing electrical or telephone system, they found it necessary to reach an agreement with these utilities to rent space on their poles or in underground conduits for the purpose of attaching their cables. (See Figure 3 for typical CATV pole attachment).

CATV had little problem with pole attachment arrangements in the 1950's. The telephone industry felt the CATV industry had limited potential and would confine its growth to rural and small town America. Following the Korean War the telephone companies were primarily interested in expanding basic telephone service, and allowed pole

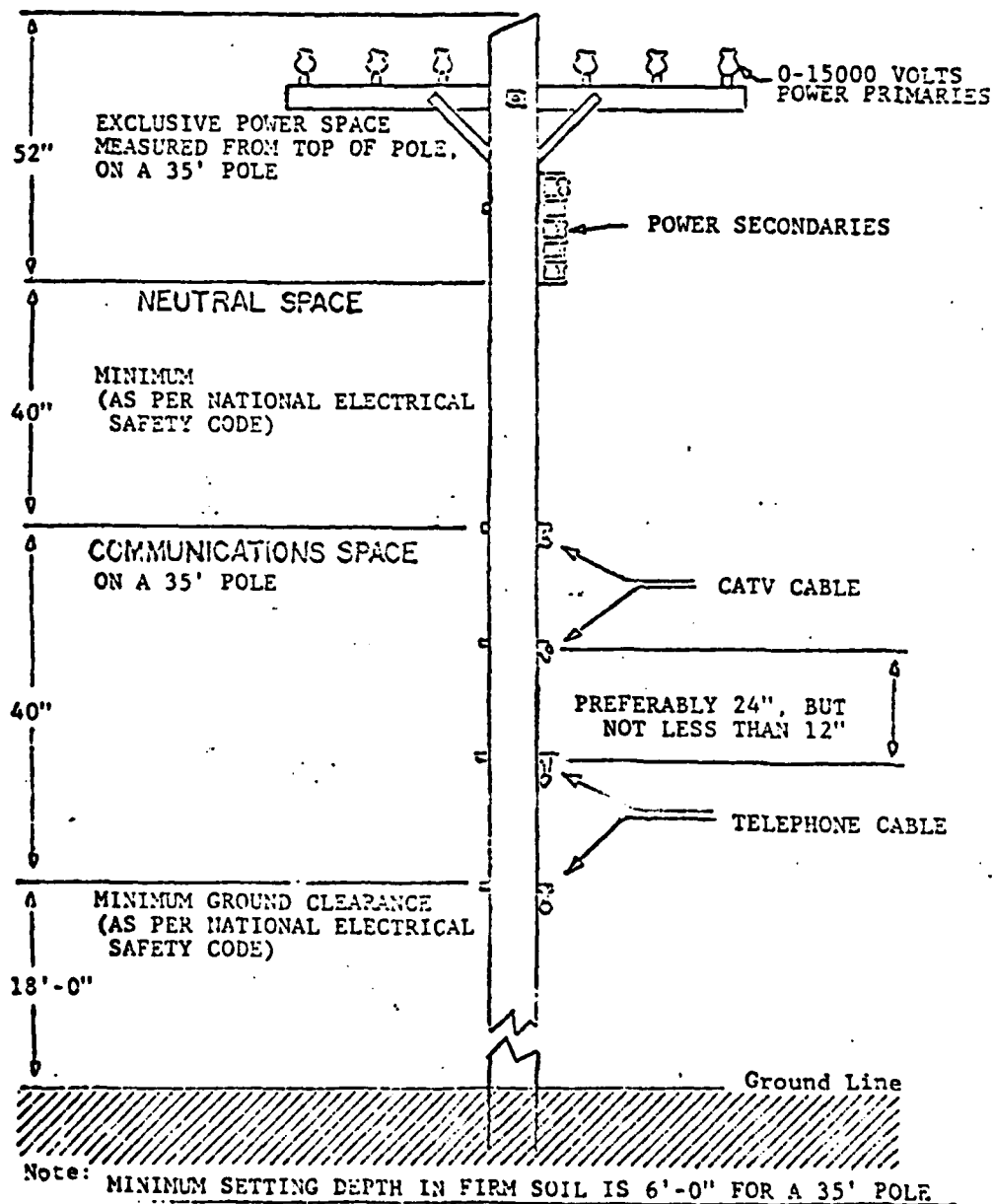


Figure 3 Typical Allocation of Space On a Jointly Used Pole.

Source: Gary Green, "Pole Attachment Agreements Between Utilities and CATV Companies," p. 5.

attachments for CATV systems at one and one half dollars per pole per year.²³ Between 1955 and 1965 utility companies began to realize the potential of CATV and tightened their pole attachment requirements. Pole attachment fees began to increase without regard for actual costs and in some cases utilities would not even grant pole attachments for any fee. Telephone companies began to offer a competitive service of providing their own channels to carry TV signals and then lease these channels back to the CATV company. While this would offset the large plant investment of the CATV, other problems were paramount. For example, prior to 1974 the Ohio Bell Telephone Company owned a cable system in Toledo, Ohio, with twenty-eight thousand subscribers. Buckeye Cablevision was paid by Ohio Bell to operate the system for them. However, maintenance was the job of the telephone company, which Buckeye controller, Frank Reinemeyer said was a "major hassle. The system was in a sorry state because Ohio Bell felt that cable was 'secondary' to its own business. We had a great deal of difficulty scheduling work and satisfying our customers, because we could not touch the poles."²⁴

In the mid 1960's the FCC found General Telephone and Electronics (GT&E) had engaged in anticompetitive conduct in a case involving its cable entity, GT&E Communications, Inc. (GTEC).²⁵ The findings were based on the actions of another GT&E subsidiary, General

Telephone of Illinois, which tried to limit competition by refusing to negotiate pole attachment agreements with independent CATV operators. Similarly, subsidiaries of another large independent, United Telephone Company, refused to negotiate pole attachment agreements with cable companies other than their own cable entity, United Transmission. The FCC proclaimed United's practices just as anticompetitive as those of GT&E. Finally, AT&T was prevented from entering the CATV field by a consent decree agreed to by the company and the U.S. Justice Department in 1956.²⁶ By 1970 most all telephone companies had sold off their CATV entities restricting their cable television interest to formulating pole attachment agreements with independent CATV companies.

In January 1978 the U.S. Congress amended the Communications Act of 1934 authorizing the FCC to regulate pole attachments in areas where there is no state or local regulation.²⁷ While the FCC struggles to devise a formula for regulating or insuring fair pole attachment agreements, each side in the controversy has different views on what is fair. The NCTA has called for a streamlined but comprehensive complaint procedure. "The Commission's goal should be a simple, fair complaint resolution which can be conducted on paper, without protracted hearings," commented NCTA general counsel, Stuart Feldstein,

If there are firm guidelines in the common trouble spots, good faith negotiations between cable companies

and the utilities will lead to contracts rather than complaints.²³

The two areas of dispute between CATV and utilities are the cost of space on the pole for CATV use, and who must justify the fee charged for this space. NCTA maintains that the space on the poles, conduits or ducts is surplus space that otherwise would be unproductive, and utilities should lease the space at marginal rates to reduce the burden on utility service customers.²⁹ The utilities dispute the NCTA claims that recurring costs of maintenance of cable lines would not be significant and should not have a great bearing on the establishment of rates. Utilities claim these costs involve surveys, legal documents, tree trimming and removal, billing, guy wires, additional wear and stress on the poles, false calls (sending repair crews out when a downed wire turns out to be a CATV cable), record keeping, negotiating time, easements, costs of poles, and more.³⁰ In addition CATV companies say it is unreasonable for utilities to inspect their own facilities when they inspect pole attachments and charge the whole thing to cable companies. It is unreasonable, utilities say, to bear all the costs of setting up equipment when part of that equipment is to be used by a company that pays nothing. Finally, utilities feel that they should not be required to always assume the burden of proof when a dispute regarding rates is brought before the FCC. If the cable company initiates the

complaint, as both sides acknowledged would usually be the case, the cable company should bear the burden of proof. The NCTA maintains that the utilities must bear this burden since,

The facts upon which the case must ultimately be decided are in the exclusive possession of the utility. The only possible incentive to their disclosure is the assignment of the ultimate burden on that party.³¹

When the cable interests first approached Congress seeking a law to end allegations of unfairness and inequity in establishing pole attachment rates, they wanted legislation to require the FCC to assert jurisdiction and bypass what they considered to be utility-controlled Public Utility Commissions (PUC). However, Congress eventually produced a law granting the FCC jurisdiction only if states failed to approve their own laws on pole attachments. This leaves the door open for states to begin or expand their regulation of intrastate cable companies operating within their jurisdiction. As of September 1978 thirteen states and Puerto Rico had certified that they regulate pole attachment rates.³² The states are Alaska, California, Connecticut, Illinois, Indiana, Louisiana, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Vermont, and Wisconsin.

State and Local Regulations of CATV

At least thirty states have considered regulating their domestic community antenna or CATV systems during the past two decades. Their efforts have been generally discouraged by a combination of three factors: The likelihood of eventual federal pre-emption, the minimal extent of local concern caused by their operation, and the inappropriateness of public utility controls to remedy those local complaints which did exist.³³ In 1974 Delaware became the eleventh and most recent state to regulate cable through a state agency.³⁴ This low number is not surprising since the CATV industry has long opposed state and local regulation, especially regulation which essentially duplicates that of the federal level. While the NCTA opposes state regulation maintaining,

Under most existing state statutes the ability of cable television management to make independent business decisions is severely restricted. As a result capital formation may be more difficult in states subject to regulation. The consumers in such states ultimately suffer.

It also recognizes that,

In the majority of states which have state regulation, experience has shown that as the regulators become more familiar with the industry and its problems, their approach to its regulation improves.³⁵

The first clear indication that a state might claim jurisdiction over local aspects of CATV operation concurrently with the FCC was contained in the Supreme Court's decision in TV Pix vs. Taylor in 1970. The Court

held that the state of Nevada could impose certain rate and franchise conditions upon all domestic cable operators because,

The community antenna television business . . . constitutes the last stage of . . . transmission of television signals. . . . It is much more local than national, involving cable equipment, through public streets and ways, local franchises, local intra-state advertising and selling of service.³⁶

In its 1972 Report and Order on CATV the FCC expressly delineated the outer perimeters of the pre-emptive jurisdiction it would claim,

It asserted exclusive authority over issues involving the quantity and nature of broadcast signals carried by each cable system, the technical standards to be applied, program-origination rules, cross-ownership restrictions, and the obligation of offering equal employment opportunity. At the same time the agency admitted it did not have a staff sufficient to license cable systems already almost three times as numerous as television stations. It therefore asked states or their municipalities, subject only to minimal federal supervision, to make the initial franchise or license awards; to determine the franchise areas; set mandatory rates of diffusion, subscriber payments, and service standards; and establish franchise fees if necessary.³⁷

Basically, state regulation comes in three forms: Public Utility Commission; an office of cable television within the PUC; or an independent regulatory body.³⁸ States in which cable is defined as a public utility and regulated by the PUC are Alaska, Connecticut, Nevada and Vermont. Delaware, New Jersey and Rhode Island fall within the regulatory office of the PUC; while Massachusetts, Minnesota and New York regulate through newly created cable commissions. Hawaii regulates through the department

of regulatory agencies (See Table 3).

Just as the cable industry fought against federal regulation in the 1960's, they are fighting state and local regulation now. With the possibility of total federal deregulation as provided in the Communications Act of 1978, CATV is increasingly concerned that the states will move in to fill the void, perhaps, changing things that cable now feels are well established and should not be subjected to change. One of these areas is the FCC imposed ceiling on franchise fees. Doug Dillrick of Viacom believes,

It's terribly important that the FCC maintain some rules in this area so that the industry itself has some rational basis on which local fees are imposed, rather than exposing it to the whims of political pressures that might come about in the various cities. I think it applies not only in the new franchises, but obviously when franchises are renewed and the thought of new fees are considered by franchising bodies.³⁹

As federal regulation decreases the state and local regulatory agencies may move into fill the void. However, there has been no great rush of state laws to bring cable television into the state regulatory arena. Just as the telephone companies are taking a wait and see attitude towards CATV, the majority of states appears to be taking the same approach towards regulation.

Summary

The Communications Act of 1978 has drawn both praise and criticism from all sides in the

TABLE 3

Regulatory Activities in the State Agencies*								
State	Regulatory Agency (effective date)	Systems for Which Applications Processed			Rate Cases		Staff Size	Cost of Regulation
		New	Existing	Renewals or Transfers				
					Decided	Pending		
Alaska	PUC 1970	8	6	0	6	1	5 commissioners none cable 31 PUC staff	Cannot break out
Connecticut	PUCA 1973	17 1 pending	0	6 est.	24	1	5 commissioners 6 on cable (p-t) 100 PUCA staff	Cannot break out
Delaware	PSC 1974	0	6(a)	0	1	2	5 commissioners none cable 9 PSC staff	Cannot break out
Hawaii	Dir. of Regulatory Agencies 1970	4	6	1	4(b)	3 1 (leased channel)	Director & Dep. A G. (p-t) 4 cable staff	1970 \$40,000 1976 \$113,005 1977 \$163,879E
Massachusetts	CATV Commission 1971	Not Applicable			10(c) 16 COV	2	7 commissioners (p-t) 9 staff	FY 71 \$ 50,000 FY 74 \$138,000 FY 77 \$147,800 FY 78 \$160,950
Minnesota	Commission on Cable Communications 1973	24(d) & 23 IC	76	9	NA	NA	7 Bd. members (p-t) 1 Exec. Dir. 7 staff 1 sp asst. A G. (p-t)	1974 \$101,000 1975 \$194,500 1976 \$179,000 1977 \$201,000
Nevada	PSC 1970	4	5	1	2	1	3 commissioners none cable 47 PSC staff	Cannot break out
New Jersey	PUB 1972	5	32	0	23	0	3 commissioners 16 staff	1972 \$ 70,000 1974 \$ 77,900 1975 \$130,000 1977 \$238,000
New York	Commission on Cable TV 1970	94(e)	496(e)	64 R(e) 56 T	458(e)	48	5 commissioners 42 staff	FY 74 \$764,000 FY 78 \$1,017,000
Rhode Island	PUC 1969	8	1	0	NA	NA	3 commissioners plan to hire cable analyst 35 PUC staff	Cannot break out
Vermont	PSB 1970	11	37	4 est.	23 est. (16 full)	1	3 commissioners no cable 7 PSB staff	Cannot break out

* Courtesy of: *The Cable/Broadband Communications Book 1977/78*; Communications Press, Inc., Mary Louise Hollowell, editor; ©1977.

(a) PSC grants franchises only in unincorporated areas.
 (b) 1 case through appeals process completely; 2 others denied and on appeal.
 (c) Massachusetts required Certificate of Verification on all rates.
 (d) 23 of total 47 certificates are interim certificates for 5 years.
 (e) Based on municipalities rather than systems.

Source: Krystyna Strzelec, "CATV Regulation Update: A State-By-State Summary," VUE, February 20, 1978, p. 15.

telecommunications industry. The proposed federal deregulation of cable television is a two-edged sword. Television broadcasters do not want the end of CATV restrictions on programming and signal carriage. CATV is against the allowing of telcos entering their area of providing electronic services. Finally, the new Act would eliminate FCC authority to enforce guidelines on pole attachment agreement and state and local regulation of CATV operations.

FOOTNOTES

¹Cable Television: Promise versus Regulatory Performance; Subcommittee on Communications, p. 5.

²"House Panel Offers Plan to Deregulate Communications," Congressional Quarterly, June 17, 1978, p. 1547.

³Ibid., p. 1547.

⁴Ibid., p. 1557.

⁵"CATV Announces Rewrite Position," VUE, August 7, 1978, p. 10.

⁶Arthur Hill, "Federal CATV Regulation Prohibited In Communications Act Rewrite Bill," VUE, June 12, 1978, p.8.

⁷WLVA vs. FCC, 459 F.2d. 1286 (D.C. Cir. 1972).

⁸Subcommittee on Communications, op. cit., p. 46.

⁹Red Lion Broadcasting Co. vs. FCC., 395 U.S. 367(1969).

¹⁰Ibid.

¹¹Subcommittee on Communications, op. cit., p. 49.

¹²"Television Programming Data," FCC 53027(1974).

¹³"Good News Programming," Broadcasting, January 5, 1976, p. 96.

¹⁴Rolla Park, Cable Television and UHF Broadcasting, The Rand Corporation, R-689-MF, January 1971, p. 1.

¹⁵Subcommittee on Communications, op. cit., p. 47.

¹⁶"NCTA Criticizes Cable Restrictions Saying Broadcasters Need Not Fear," VUE, March 20, 1978, p. 6.

¹⁷Arthur Hill, "Cable Industry Testifies Against Telco Entry," VUE, August 21, 1978, p. 6.

¹⁸Ibid., p. 6.

¹⁹Arthur Hill, "Will They Let Ma Bell Back Into The Cable Business?" TVC, October 1, 1978, p. 44.

²⁰Ibid., p. 46.

²¹Ibid., p. 46.

²²Ibid., p. 46.

²³Gary Green, Pole Attachment Agreements Between Utilities And CATV Companies, Telecommunications Project, University of Colorado, 1977, p. 20.

²⁴Arthur Hill, "Will They Let Ma Bell Back Into The Cable Business?" op. cit., p. 57.

²⁵Ibid., pp. 44-45.

²⁶Ralph Lee Smith, The Wired Nation, pp. 66.

²⁷"The Pole War Isn't Dead; It Was Only Sleeping," Broadcasting, June 19, 1978, p. 48.

²⁸Arthur Hill, "Cable, Utilities Battle Over Pole Attachment Rules," VUE, July 24, 1978, p. 8.

²⁹"The Pole War Isn't Dead," op. cit., p. 48.

³⁰Arthur Hill, "Cable, Utilities Battle," op. cit., p. 8.

³¹Ibid., p. 8.

³²"NCTA Wants FCC To Tighten Up On Rule Regulations," Broadcasting, September 18, 1978, p. 71.

³³Don R. LeDuc, Cable Television And The FCC, p. 211.

³⁴Krystyna Strzelec, "CATV Regulation Update: A State-By-State Summary," VUE, February 20, 1978, p. 14.

³⁵Ibid., p. 14.

³⁶TV Pix vs. Taylor, 304 F. Supp. 459; affirmed 396 U.S. 556(1970).

³⁷Don R. LeDuc, op. cit., p. 212.

³⁸Krystyna Strzelec, op. cit., p. 14.

³⁹"Franchise Fee Ceiling Could Spell Cable Havoc," VUE, April 3, 1978, p. 4.

CHAPTER IV

CONCLUSION

Introduction

In the past thirty years the cable television industry has grown from a television signal carrier in rural mountainous America to a telecommunications system capable of two way interaction between viewer and the outside world. FCC figures¹ list the CATV industry with over twelve and one half million subscribers in more than seven thousand communities. Pay cable programming is offered in one thousand communities with the most populated states of Pennsylvania, New York, and California having the majority. Each reporting CATV franchise had an average of five thousand four hundred subscribers and total revenues of four hundred twenty six thousand dollars,

Whatever maybe in cable's future, at least one part of its past is behind it: Cable television's days as a community antenna service, piping over-the-air television signals into homes that have poor reception or with only a partial complement of network and independent TV signals, are over. Most of the so-called classic cable systems have been built. Rather, cable's future lies in the major metropolitan areas . . . 2

Cable television's future depends mainly on two closely related factors. One is new technology to bring increased capabilities at lower costs, while the other

is its ability to provide the services needed to profitably penetrate the urban markets. New technology is needed in fiber optics and digital transmission to provide CATV systems with greater bandwidth which will in turn give them the capability of providing a greater variety of services.

New Technology

An advance in technology which may greatly assist CATV development is the optical fiber transmission cable. Presently, CATV signals are transmitted by electrical current running through a coaxial cable. The optical fiber cable, as the name implies, transmits signals with specially processed light traveling through the cable. While the optical fiber cable is smaller and lighter than comparable coaxial cable, its main advantage is that for the same size cable, optical fiber cable provides greater bandwidth.³ Therefore, more signals can be carried on the optical fiber cable than on the coaxial cable. The structural design of the optical fiber and coaxial cables is shown in Figures 4 and 5.

An optical fiber system is currently being evaluated in Japan. The Higashi-Ikoma Optical Visual Information System (HI-OVIS) is a Japanese government project with three objectives. Besides stimulating research in the optical fiber communications industry and evaluating the social impact of this new type of

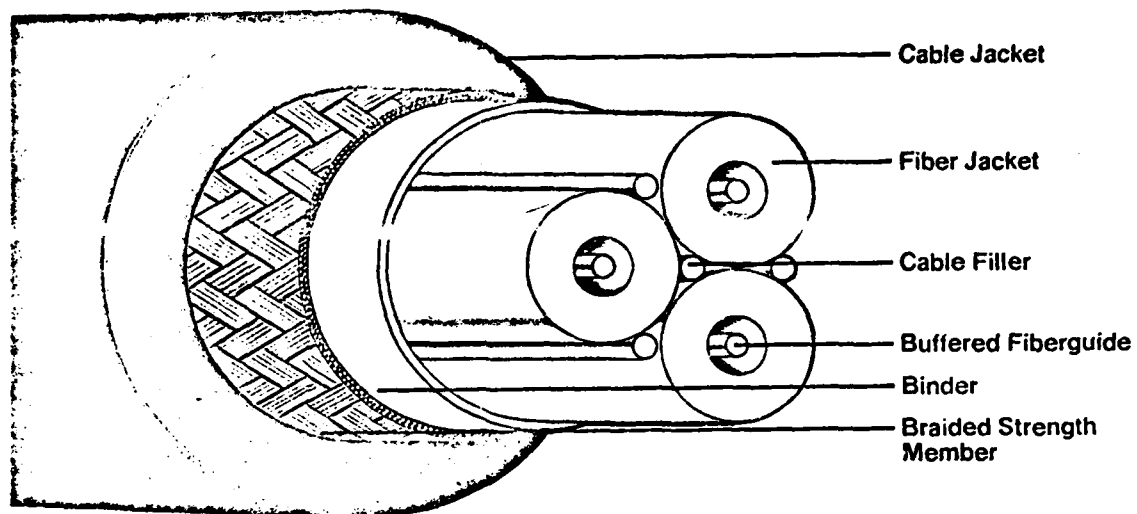


Figure 4 Three Fiber Optical Cable

Source: Times Wire And Cable Co., Willingford, Conn.

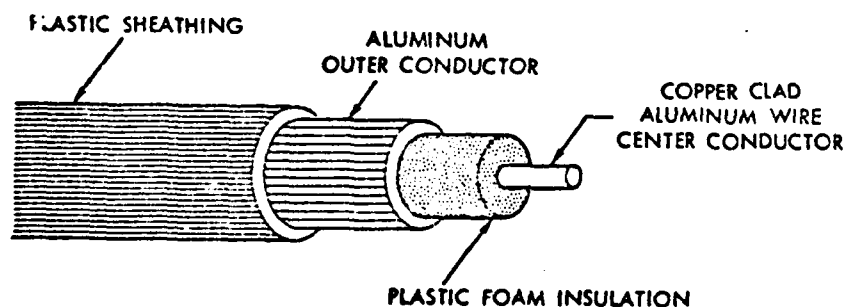


Figure 5 A Typical Coaxial Cable

Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology, P. 2.

system, the project is to perform a practical field trial of an optical fiber two-way cable video CATV system.⁴

The system will eventually interconnect one hundred and sixty homes with eight public facilities such as the City Hall and several schools.

Another technological advancement assisting CATV is digital transmission. The present system of cable television is to transmit electrical signals over coaxial cable in analog form. Since the technology for analog transmission has been available for a long time, it has been the easiest and least expensive method of transmission. Unfortunately, analog signals are very susceptible to noise, especially noise caused by amplifiers which can render an analog signal unintelligible. Digital signals offer a solution to this noise problem by allowing the noise to be filtered out without changing the signal, something which cannot be done using analog signals. Today digital signal equipment is more costly than analog equipment, but as the use of digital signals has steadily increased, the cost of equipment has decreased. In addition to reduced noise, digital signals use less bandwidth than comparable analog signals so more signals can be transmitted over the cable.

Digital signals offer great promise for the two-way cable system. Thousands of fire and burglar alarm systems using digital signals could be linked to one headend using one channel on the cable.⁵ Subscriber responses to two-way

programs are keyed into the subscriber's terminal and all subscribers' responses are simultaneously transmitted to the headend via digital signals on one channel.

Both fiber optics and digital transmission will find application in the two way CATV systems. While the present day cable television system transmits signals only downstream, from the headend to the subscriber, the two-way system also has the capability for transmission of signals upstream, from the subscriber to the headend. There are several two-way systems in existence today. Television pictures, voice conversations, and data messages are all carried on the cable as electrical signals. The main difference between these services is the frequency bandwidth and subscriber terminal equipment required by each. Since video pictures require a relatively large amount of bandwidth compared to non-video services, the upstream path will be used principally to carry data messages from subscribers. These messages could include responses to questions asked on an educational program, opinion on a proposed city ordinance, or requests for library services. Fire and burglar alarm messages could be sent automatically to a central station. Table 4 gives examples of possibilities for future systems.

The technical difficulty in two-way service is noise. Each television set and subscriber terminal introduces some noise into the upstream transmission path, and the cumulative effect from large numbers of terminals

TABLE 4

SOME PROPOSED INTERACTIVE SERVICES FOR CABLE TELEVISION^a

Subscriber	Institutional
Interactive instructional programs	Computer data exchange
Fire and burglar alarm monitoring	Teleconferencing
Television ratings	Surveillance of public areas
Utility meter readings	Fire detection
Control of utility services	Pollution monitoring
Opinion polling	Traffic control
Market research surveys	Fingerprint and photograph identification
Interactive TV games	Civil defense communications
Quiz shows	Area transmitters/receivers for mobile radio
Pay TV	Classroom instructional TV
Special interest group conversations	Education extension classes
Electronic mail delivery	Televising municipal meetings and hearings
Electronic delivery of newspapers and periodicals	Direct response on local issues
Remote calculating and computer time sharing	Automatic vehicle identification
Catalog displays	Community relations programming
Stock market quotations	Information retrieval services
Transportation schedules	Education for the handicapped
Reservation services, ticket sales	Drug and alcohol abuse programs
Banking services	Health care, safety, and other public information programs
Inquiries from various directories	Business transactions
Local auction sales and swap shops	Credit checks
Electronic voting	Signature and photo identification
Subscriber originated programming	Facsimile services
Interactive vocational counseling	Industrial security
Local ombudsman	Production monitoring
Employment, health care, housing, welfare, and other social service information	Industrial training
Library reference and other information retrieval services	Corporate news ticker
Dial-up video and audio libraries	Telediagnosis
Videophone	Medical record exchange

^aIt is unlikely that all of these services will be economically feasible on cable television networks. Some may not even be socially desirable. They have been compiled from various reports, FCC filings, corporate brochures, and advertising materials. Adapted from Baer, *Interactive Television*.

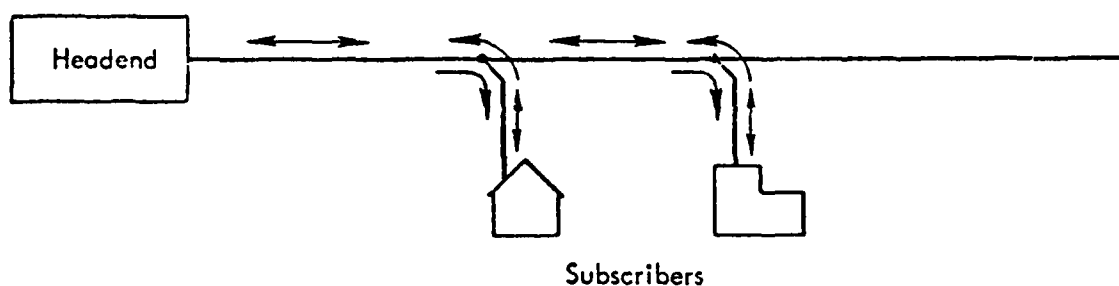
Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology, p. 36.

may be intolerable. Thus, better taps and line filter equipment must be employed on the two-way systems.

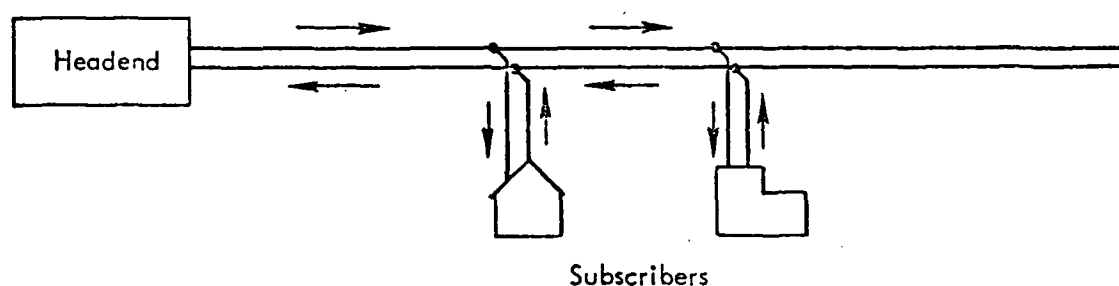
There are three ways to achieve two-way transmission. First, two separate cables can be used, one for upstream and one for downstream. Secondly, one cable can be used where signals are sent in both directions simultaneously using different frequencies. The third approach is to use a one-way round-robin cable loop⁶ to bring signals to and from subscriber locations. All three systems are shown schematically in Figure 6.

Using a separate cable for upstream transmission presents the fewest technical problems, but is more expensive. Carrying signals in both directions simultaneously on a single cable costs less than separate cables, but is more complex. Since coaxial cable is bidirectional, it poses no problems in two way transmissions. However, the signal amplifiers work in only one direction, therefore, a second set of amplifiers must be used for the upstream transmission. This is illustrated in Figure 7.

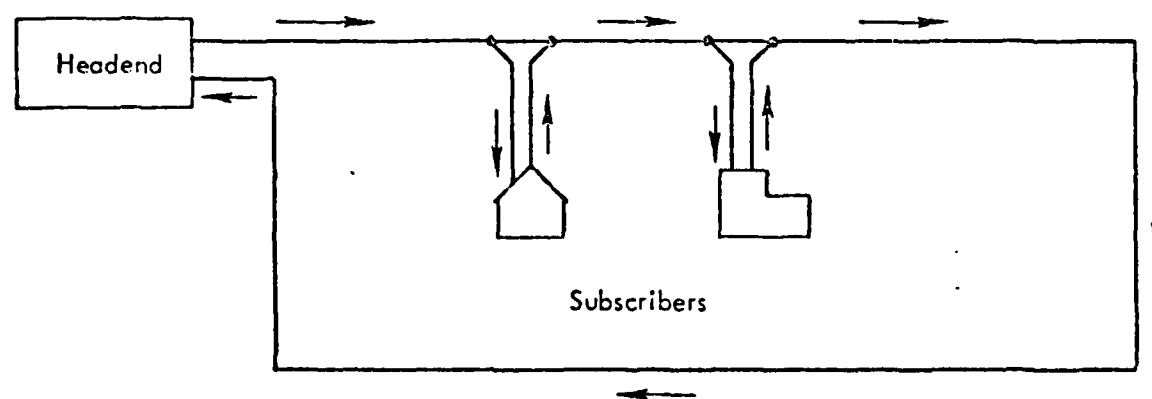
As the two-way cable system becomes more profitable either of two systems will be used. Older existing CATV systems can use the two cable approach since the one-way cable is already installed. Newly planned, but not yet installed systems, will probably use the one cable bidirectional system to cut down on initial costs.



(a) Two-way transmission on a single cable



(b) Separate cables for upstream and downstream transmission



(c) Round-robin cable loop

Figure 6 Techniques For Two-Way Transmission
Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology, p. 40.

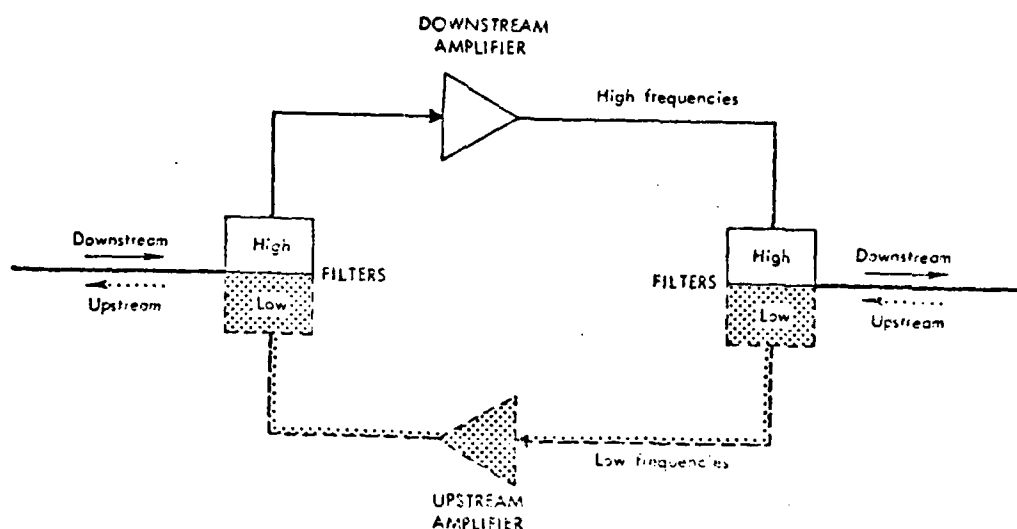


Figure 7 Signal Amplifiers For Two-Way System
 Source: Carl Pilnick and Walter S. Baer, Cable Television: A Guide to the Technology,
 p. 41.

New Services

Since the 1972 FCC rules, cable has not developed in the large urban areas where eighty percent of the TV viewing population resides. NCTA data shows that in the top fifty core cities, cable has hardly made a dent, reaching less than six percent of close to fourteen million television homes.⁷ The proposed new Communications

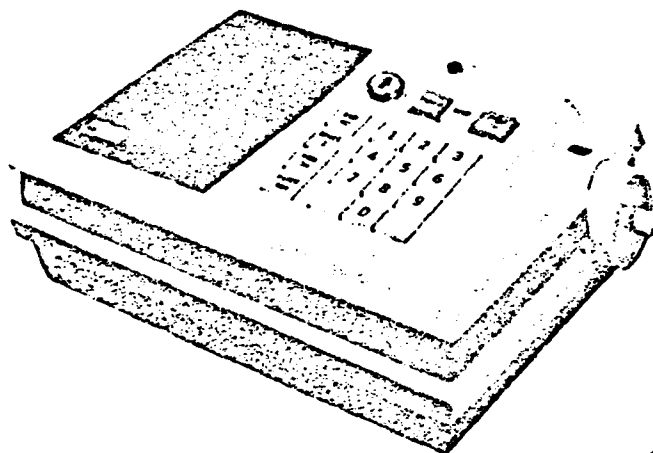
Act would allow CATV unrestricted entry into the metropolitan areas subject to state and local franchise requirements.

Penetration of these areas will require more than just offering better television reception. In New York City two CATV franchises have been operating at a financial loss for ten years, because in an area with seven VHF and five UHF broadcast stations, they offered only improved signal reception.⁸ Even the addition of a pay movie and entertainment channel has not brought profitability. New services are needed to increase penetration. Among these services are proposals for news, weather, and stock market reports channels; specialized children's and higher education channels; and minority and foreign language programming channels. A study made for a possible community oriented CATV system in the Bedford-Stuyvesant area of Brooklyn, New York, proposed several new possibilities for specialized programming.⁹ Among the new services were Job-A-Rama, instruction in preparing job application and interview, and other employment services; Children's Playhouse, pre-school education; The Consumer, shopping and moneysaving hints; The Drug Scene, documentaries on the danger of addiction; English Lessons, for Spanish speaking people; and The Black Man, programs highlighting Black culture heritage.

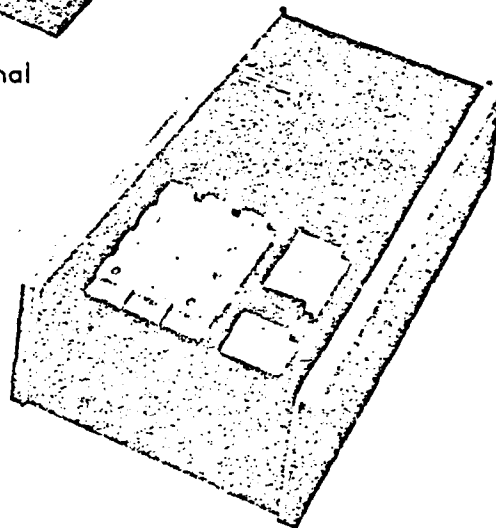
Still largely in the testing stage is the two-way system. The most publicized two-way system is the

Warner Cable Qube System in Columbus, Ohio. The Qube service offers thirty channels of programming, plus the option of selecting movies and sports on a pay per-program basis, or pushing a button on a home terminal to participate in live, local programs.¹⁰ Examples of home terminals are shown in Figure 8. Qube has forty-five hours per week of local programming plus a new service called "Campus" which will offer in home introductory college level courses.¹¹ Consumer demand has been very high for many of Qube's services. In addition to the Qube system, UA-Columbia will build a thirty-six channel system in San Antonio, Texas.¹² The system will offer the five local television stations plus a selection of independents from Houston, Dallas, Atlanta, San Francisco and Chicago. In addition to the public access channels, there will be an automated news service, a multichannel computerized information service, and a specialty service such as a fire/burglar/medical monitoring system. Special movie, sports and entertainment channels will also be offered.

If these systems receive favorable acceptance in their top fifty markets, similar systems will be used to penetrate even larger major urban markets. Charles D. Ferris, Chairman of the FCC in his speech before the 27th Annual Convention of the NCTA perceived these new services as an alternative to commercial broadcasting,



(a) Theta-Com "SRS" Terminal



(b) EIE "Data Entry" Terminal

Figure 8 Typical Home Terminals For Two-Way System
Source: Carl Pilnick and Walter S. Baer, Cable
Television: A Guide to the Technology, p. 38.

The potential is that the American public is dissatisfied, I think, with a television service of limited choice--caught in the iron grip of the ratings competition. The commercial networks and their affiliates compete for the lowest common denominator to gain a massive audience. The result is that there are substantial numbers of viewers with specialized interests left unsatisfied. You could tap this market. . . .¹³

Urban Problems

Cable television faces grave problems in its effort to penetrate urban markets. The cost of the outside cable plant is much higher in the cities. In areas where substantial sections of cable would have to be laid underground, costs may run from twenty to one hundred thousand dollars per mile of cable.¹⁴ Theft and damage to the system is much higher where CATV serves large apartment houses. In addition, there is a very high turnover rate of subscribers causing an increase in the number of service calls. Besides high costs there are numerous bureaucratic problems to be overcome.

The first bureaucratic problem may be the local franchising agency. In addition to securing the ability to service a given area and obtaining telco agreement for pole attachment, there may be a franchise tax. While the cost of a franchise may be between three and five percent of revenues, a tax could run the cost up to a total of five to fifteen percent of revenues. In New York City, Sterling Manhattan CATV ran into several bureaucratic urban problems which must be overcome in the future. In Manhattan CATV

does not have an easement, the right to enter private property, like the telco does, so right of entry must be gained to an apartment building before individual households can be provided service. In addition, entry to a block must be obtained before the building can be wired. A few recalcitrant landlords can help keep an entire city block from getting service by refusing entry from trunk lines. Then there is the problem of absentee landlords. They must be located, often at great expense, before entry can be gained. In addition some landlords see the potential for profit, and in a few cases, landlords have obtained five percent of the monthly subscription fees paid by their tenants.¹⁵

While development of the major urban markets poses challenging problems of cost, financing, and marketing, these markets offer the greatest potential for CATV. A Sampson report highlighted the following opportunities:

Residents of large metropolitan centers live closer together and generally spend more on entertainment than their suburban and rural counterparts. Higher population densities and higher incomes and educational levels mean more potential subscribers per mile of the distribution cable, thus lowering the cost-per-subscriber for the cable operating system. Poor TV reception in the city plus the desire for additional programs as an information and entertainment source offers an attractive market for the system with extra channel capacity.¹⁶

Communications Act of 1978

Neither the most advanced technology nor the best exclusive services will greatly benefit the CATV industry without the legal ability to penetrate the urban markets. The new Communications Act as presently written would allow CATV to enter the cities and to compete for the population's viewing time. Regardless of the legislative outcome of this bill, the removal of the FCC's rules restraining CATV penetration of urban areas is essential to CATV's growth. Both legislative bodies of Congress are in agreement that new legislation is needed, but the final form and enactment date are uncertain.¹⁷

Summary

The cable television industry faces a future which will bring great changes. While its growth in the short-run depends mainly on economic factors and the availability of capital, its long-run future growth depends on new technology and its ability to employ this technology in the urban markets. Cable television faces a crossroads, where if it is to grow, it must be released from the protection of federal regulation and compete with the telephone companies. It will need federal vigilance in the areas of state and local regulation, pole attachment agreements, and anti-trust practices.

Cable television must be ready to gamble on new

technology. Fiber optics and digital transmission techniques are being tested and evaluated today for employment tomorrow. The CATV industry must employ these bandwidth broadening capabilities to put more specialized programming on the cable. A few additional commercial broadcast stations and a pay TV channel will not provide the needed penetration for profitability. Subscriber desires and needs must first be determined and then satisfied with services through modern two-way systems.

Cable television got its start by providing a service wanted by the public. Their future prosperity depends on their ability to continue providing new services desired by the public using the most modern technology available.

FOOTNOTES

¹Arthur Hill, "Cable TV Revenues Approach \$1 Billion For 1976," VUE, July 10, 1978, p. 6.

²"How High Is The Peak On Cable's Mountain?", Broadcasting, January 2, 1978, p. 44.

³Tngye Li, "Optical Fiber Communication - The State of the ACT," IEEE Transactions on Communications, July 1978, p. 947.

⁴Isuneo Nakahara, "An Optical Fiber Video System," IEEE Transactions On Communications, July 1978, p. 956.

⁵Carl Pilnick and Walter Bear, Cable Television: A Guide To The Technology, p. 37.

⁶Ibid., p. 39.

⁷"How High Is The Peak On Cable's Mountain?", op. cit., p. 44.

⁸James D. Scott, Cable Television, p. 13.

⁹Sloan Commission, On The Cable, pp. 100-102.

¹⁰"Qube's Initial Success Spurs Expansion Plan," VUE, February 20, 1978, p. 32.

¹¹"Qube Expands Programming Services To Columbus Viewers," VUE, May 1, 1978, p. 88.

¹²"Two-way Proposed In San Antonio Bid," VUE, April 3, 1978, p. 6.

¹³"Ferris Tells Cable To Put Up Or Shut Up," Broadcasting, May 8, 1978, p. 33.

¹⁴"How High Is The Peak On Cables Mountain?" op. cit., p. 44.

¹⁵Scott, op. cit., p. 13.

¹⁶Cable Television: Takeoff Into Sustained Growth, Samson Science Corp., New York, 1972, p. 59.

¹⁷"Hollings Takes Tough Stance On 'Renovation' Endorses Fees," Broadcasting, October 23, 1978, p. 23.

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APPENDIX A

GLOSSARY

Amplifier - A device for increasing the strength of a signal to a level where information can be extracted upon receipt of the signal.

Analog Signal - A signal in the form of a continuously varying physical quantity such as voltage, which reflects variations in some quantity, such as loudness of the human voice.

Bandwidth - The range of frequencies that can be passed by a transmission medium without undue distortion.

CATV - Community Antenna Television, also referred to as Cable Television.

Contour - An area surrounding a television transmitter where radiated signals can be received without undue distortion.

Digital Signal - A discrete or discontinuous signal; one whose various states are discrete intervals apart.

Distant Signals - A signal of a TV station which does not normally reach the CATV's community.

Downstream Transmission - Transmission on a CATV system originating at the headend for reception at the subscriber's terminal.

Exclusivity - The contractual right to be the sole exhibitor of a program in a particular area for a specified period of time.

FCC - Federal Communications Commission

FRC - Federal Radio Commission

Headend - That part of a CATV system which processes received signals for retransmission to the subscribers.

Imported Signals - See distant signals.

Major TV Market - The specified zone of a commercial Television station licensed to a top-100 community as designated by the American Research Bureau (ABR), a private organization that conducts audience analysis.

NAB - National Association of Broadcasters

NCTA - National Cable Television Association

Nonduplication - Restraint imposed upon cable carriage of distant signals offering the same programming as that transmitted by a local station.

Pay TV - An independently programmed communications system charging subscribers for each program viewed.

Penetration - The percentage of households in an area where cable service is available who have subscribed to the service.

PUC - Public Utilities Commission

Signal Carriage - The conveyance or retransmission of a broadcast signal.

Subscriber - One who pays a fee for reception of CATV signals.

Telco - Telephone company

TV - Television

UHF - Ultra High Frequency

Upstream Transmission - Transmission of signals from the subscriber's terminal for reception at the headend of a CATV system.

VHF - Very High Frequency

Video - Signals of large bandwidth requiring special electronic receivers to convert the signals into recognizable pictures.